DOMESTIC ENGINEERING

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BY
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NOTICE TO ADVERTISERS.

Copy and cuts for advertisements intended for a particular issue should reach the office of DOMESTIC ENGINEERING on Wednesday of the previous week if it is desired that a proof of the advertisement shall be submitted. New advertisements can be received up to noon of Wednesday of the week of issue, but no proof can be shown.

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Suggestion:
Cut out; frame neatly; put in show window; change weekly.

Central Station Heating.

Some day the business of supplying heat will be as much centralized as is the gas lighting and electric lighting and power business today. In this town there are many opportunities for neighborhood heating plants to be constructed, where some enterprising man can develop heat and sell it to all the residents in his block. If contemplating a heating plant why not figure with us on this kind of a proposition?

The Smead System

Many years ago, when sanitation, metaphorically speaking, was in knickerbockers and the art of heating and ventilation in flannel bands, the late Colonel Isaac D. Smead, of Toledo, O., invented a system of heating and ventilation for school buildings combined with the disposal of excreta. About all that can be said for Colonel Smead's system is that there were many schools in those days that required the disposal of sewage, and in the general absence of a sewage system, and the now well-known septic sewage disposal plant not having been devised, he offered what seemed to be to many boards of education an easy way out of the difficulty. Nevertheless, from the standpoint of the sanitarian and the heating and ventilating engineer, the Smead system, or the Smead-Dowd or Smead-Ruttan system, as it was variously called, was an abominable proposition. It was pretty well scotched fifteen years ago by "Domestic Engineering's" editorial attacks upon it, but once in a great while we hear of its revival in some part of the country, and we are asked to express an opinion about it. As the copies of "Domestic Engineering," containing the editorials referred to, are not available, we are going to print a few words which will sum up some of the few points presented as to why the Smead system should not be utilized in heating and ventilating buildings.

The Michigan State Board of Health appointed a committee of two members to visit Colonel Smead's plant in Toledo and examine several school buildings in that city, in which his system of dry closets was in use, and after this personal investigation, made in company with Colonel Smead, they adopted the following conclusions:

1. The dry closet system as introduced in connection with the Smead-Ruttan system of ventilation, with a sufficiently strong and constant draught presents features of economy and conveniences which render it worthy of investigation.

2. The apparent success of the system is wholly due to the efficiency of the system of ventilation in connection with which it is introduced.

3. The system presents several features, however, which do not commend it to sanitarians, and which certainly suggests a further study and observation of the system before it can receive scientific indorsement.

(a.) There is always a possibility, and under some circumstances, as during the prevalence of adverse winds, and in hot weather, a probability of an interference with the ventilating system by which fecal odors may be carried, by a back draught in the foul air ducts, into the school rooms.

(b.) The system does not provide a satisfactory method of caring for the boy's urinal.

4. On the whole, we are obliged to express the opinion that the dry-closet system is not in the line of the best sanitary progress.

Your committee especially call attention to the fact that their inquiries thus far have been prosecuted at a season of the year when this system would necessarily appear at its best and when its dangers and disadvantages are least likely to appear.

Richard Nickson, of Ottawa, Ill., wrote "Domestic Engineering" as follows:

As a mechanic of fifteen years' experience I believe one

investigation will almost convince anyone that a system that depends on a "stack heater" to baffle heavy winds and foggy atmosphere, is, in a sense, a "fizzle." I took a good clear, breezy day to test the ventilation in our new high school, and found (nothing surprising to me) the impure air coming directly from dry closets into two different rooms. It may be the apparatus was left uncompleted, but at any rate, in my judgment, it should be so arranged as to prevent the back circulation of air over the deposit chambers.

G. R. Brandt, then principal of the public schools at Bancroft, Mich., wrote to Henry B. Baker, M. D., then secretary of the Michigan state board of health, as follows:

During cold weather, when the air outside is much colder than that inside, the ventilation by means of the Smead system is very good, and no foul odors exist in any part of the building during school hours, but as soon as fires are not kept burning in the furnaces, ventilation ceases in part, and the disagreeable odors are very noticeable, even in the school rooms. The tendency in this direction is very much augmented when rainy weather exists, and it is then utterly impossible to keep the rooms in fit condition, even when the greatest care is exercised by keeping a fire in the ventilating shaft heater and opening basement windows. I find also that matters are becoming worse as the amount of excreta increases, and that the foul air does not dry or remove the moisture from excreta to any considrable extent in passing over the same.

Robert T. Roberts, then superintendent of the Wisconsin public school for dependent and neglected children at Sparta, wrote as follows:

The Ruttan-Smead System has not given us satisfaction. Four of our cottages are heated and ventilated by the Ruttan system. The company has sent different men to investigate the workings of the system here, and finally concluded that the building had not been constructed according to their specifications. In view of this they have made a direct connection from the rooms to the foul air chamber, and have instructed me to keep a strong fire in the flues to create a good circulation, and I think this has improved the ventilation and the closet business also. Our steam heating and ventilating system has given us much better satisfaction. As far as our experience teaches us thus far, we are more favorably inclined to the steam heating, by all means.

The committee of the board of education of La Crosse, Wis., where the Smead system was installed in a large number of school buildings, reported as follows:

Your special committee on ventilation and heating respectfully reports that after examination and investigation of the Smead warming and ventilating systems in use in the public schools of this city, it finds that in respect to heating it is not perfect or satisfactory, and as to ventilation, the system is bad and dangerous to the health of teachers and pupils.

In the "Milwaukee Sentinel" the following statement was made:

Principal Weimar of the Thirteenth district primary school No. 4, corner of Center and North Pierce streets, dismissed his classes the other day on account of the foul air in the school. This was not caused by sewer gas, but by the heating apparatus, which is said to be defective, and to fill the building with a nauseating gas which gives the children and teachers sick headache. The Smead dry air system is in this school, and has proved very unsatisfactory this winter. The air in the school has been very bad, and the children will not be allowed to return to the building until the system is repaired. Alderman Fass is strongly opposed to this system, and is in favor of tearing it out and putting a system of heating which will not endanger the lives of the pupils.

The Board of Health of Saginaw, Mich., made a report as follows:

The board begs leave to state that it has made a thorough inspection of the buildings, and especially of the dry-closet system, and finds that the complaints emanating from so many sources are not without foundation, and that, while the system, as it exists, under the most favorable circumstances, introduced in a building constructed so as to favor its perfect working, does not at all times carry away the foul odors from the closets, on the contrary, with adverse winds or damp atmosphere, with an open door or window, a back current of air is caused, carrying with it the odors from the closets and urinals. In some instances we found that when the wind came from a certain direction, or during damp atmosphere, some of the rooms became so filled with noxious odors and gases that the teachers were compelled to dismiss the scholars, notwithstanding every precaution taken by the janitor to keep the system in proper working order, and under the most favorable circumstances the rooms are not free from closet odor. During Saturday and Sunday, when the fires are allowed to go out, there is nothing to prevent the whole building from becoming saturated with foul closet odor.

Thos. W. Smith, then inspector of plumbing of Cleveland, O., wrote as follows:

The dry closet has been condemned by the present school council and the former health officer and none are now allowed in the new school buildings. The Smead people themselves have virtually confessed that they are a failure by replacing this system with the water carriage system, at their own expense, in one of our school buildings and several factories. This I know to be a fact. The dry closet system when placed within a building, is a damnable piece of work, and should never be tolerated by our people.

It is not necessary to express any further opinion as to the merits of a system which combines the disposal of excreta with the heating and ventilation of a public school building. These documents speak for themselves and leave no question as to what a disinterestd person's judgment will be.

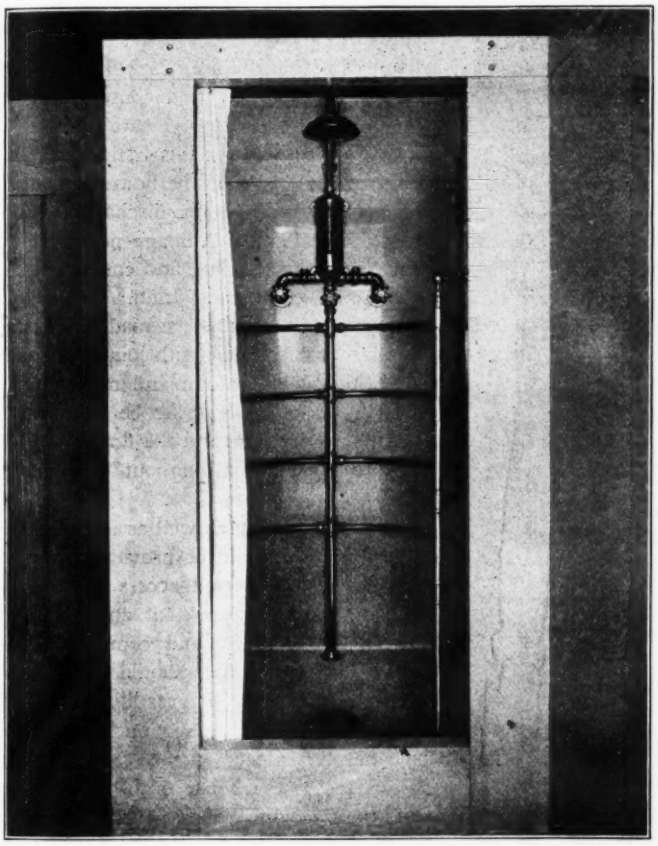
This unique shop is devoted to the business of Becher & Co., in the beautiful San Anselmo country of California. It is about midway between San Francisco and San Rafael and gorgeous Mount Tamal-Pais can be seen towering above in the distance. Photograph by our Mr. Winslow.

Plumbing for Club Buildings

By Jno. K. Allen,

Member American Society of Inspectors of Plumbing and Sanitary Engineers.

In no class of buildings of public or semi-public character are the demands for luxury so great as they are in a building designed to house a club. Almost every city points with pride to one or more buildings of elaborate character occupied wholly or in part by clubs for social purposes. Recent samples of buildings erected for this purpose seem to be of unparalleled luxury. As the American people are fond of expending their wealth for pleasure as well as utility, it is natural that in the equipment of a modern club the plumbing fixtures should be of the most elaborate type. In no other country does the demand for high-grade plumbing exist to the degree that it does in the United States, and in no other class of buildings, except possibly a very few private residences, is plumbing installed of such an elaborate character as is found in clubs which are now being built or which have recently been constructed.



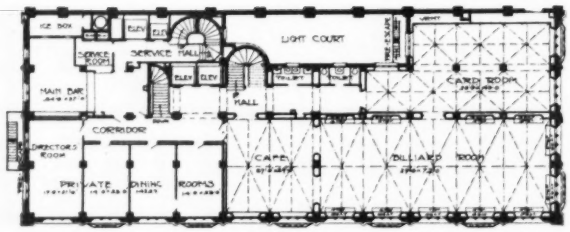
In most clubs shower baths form an important feature. This is one of the showers as installed in the University Club of Chicago. The plate is reproduced through the courtesy of Jas. B. Clow & Sons.

Some General Considerations.—As clubs which are wealthy enough to erect their own buildings have sufficient means usually to secure a building of an elaborate character, it should always be considered that nothing should be used but goods of the very highest quality, guaranteed to be of adequate capacity, and of necessary strength.

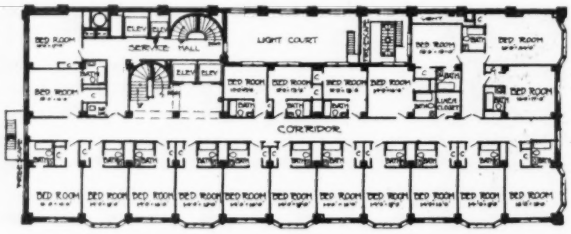
The Piping.—The piping in modern club buildings will be divided somewhat in the following groups: No. 1, sewer connections; 2, house drain; 3, soil pipe; 4, vent pipe system; 5, rain water leader system; 6, water connections; 7, water pipes; 8, pump connections; 9, tank connections; 10, gas connections, and 11, gas piping.

Sewer Connections.—The sewer connection must be made at a location shown on the permanent plans for the building and it will then coincide with the architect's design for arched holes in the foundation walls, through which the house drain will pass. Usually the city ordinance will govern the manner of making the connection with the sewer.

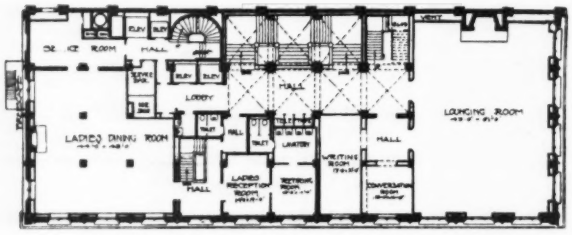
In the Cleveland plumbing code, which is the most recent code of elaborate type which has been adopted in this country, it is provided that all connections between joints of all kinds shall be gas and water tight; and that where crock sewers are used that the joint shall be made by first caulking the hub one-half full with a gasket of oakum and then filling the balance with good Portland cement mortar, freshly mixed, made of one part of Portland cement and three of clean, sharp sand. Each joint should be carefully banked, wiped and cleaned on the inside with a swab before the next joint is made. In the case of crock sewer pipe laid outside of the wall of the building the gasket of oakum may be omitted. Joints that connect iron pipe with crock pipe shall be made in the same manner with oakum and cement, but the iron



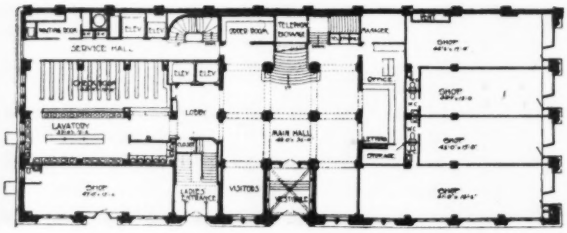
Seventh floor plan of University Club of Chicago showing the provision of toilet rooms in connection with cafe, billiard-room and cardroom.



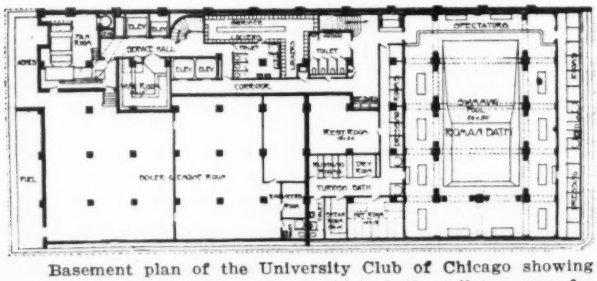
Typical floor plan of sleeping chambers showing bathroom connected with each bedroom of the University Club of Chicago.



Second floor plan of the University Club of Chicago, showing special toilet arrangements for ladies.



First floor plan of the University Club of Chicago showing main hall, lobby, check room and lavatory.



Basement plan of the University Club of Chicago showing swimming pool, Roman bath, Turkish bath, toilet rooms for members and service toilet rooms.

pipe must not be smaller than the crock pipe unless an increaser or reducer is used. In case the connection is between iron pipes the joint shall be made with picked oakum and but one pouring of molten soft pig lead at least one inch deep, caulked and smoothly faced when cold.

The house sewer or main drain is that part of the horizontal pipe of the house drainage system which extends from the house drain to its connection with the main sewer. This should preferably be constructed of extra heavy cast iron pipe. Some ordinances permit the use of crock pipe and if the house sewer is well constructed of this material it should prove satisfactory.

The House Drains.—This is that part of the horizontal piping of the house drainage system which receives the discharge of all soil, waste and other drainage pipes inside the walls of any building and conveys it to the house sewer or main drain.

The house drain must be made of extra heavy cast iron soil pipe with joints caulked, made with picked oakum and molten soft pig lead. The grade must be accurately laid with proper flow and the flow must be evenly distributed throughout its entire length.

In the house drain as well as in the main drain cleanouts should be provided at such points which will permit access to the entire line of drainage so that any obstruction can be promptly and completely removed. These cleanouts should be of such a character as will be readily removed without destroying the section of pipe in which they are placed.

The sizes of the house drain and of the main drain in club house plumbing is important, because the waste from so many people will pass through it. The following table gives the minimum size of metal house drains which also receive the rain water leader connections. In this table the number of small fixtures or their equivalents in larger fixtures is given when the drain is laid at the grade indicated. If the drain is made of crock pipe the diameter should be one size larger than given. In this table twenty square feet of roof or yard area which sheds water into a drainage system counts as one fixture, three feet of urinal trough or wash sink counts as one

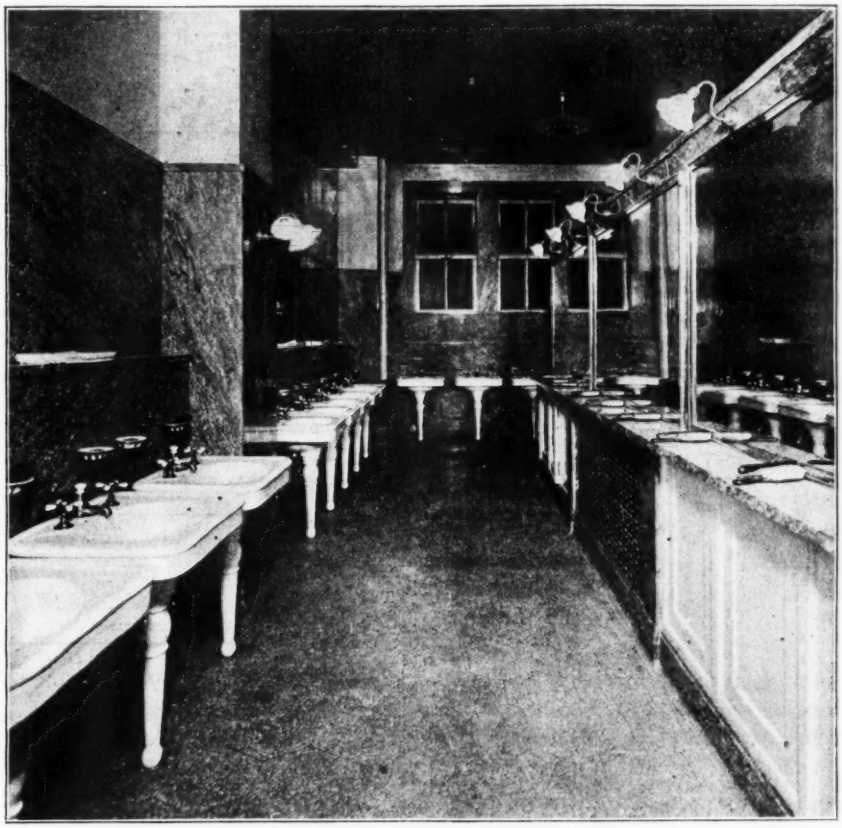
fixture, one bath, basin or sink or other small fixture counts as one fixture, one pedestal urinal or slop hopper sink counts as two fixtures, one water closet as two fixtures.

If the drain is laid with a flow of one in one hundred and receives wastes and rain water only, the following are the sizes to be used for the number of fixtures specified.

2 inches for forty-one fixtures or less.
2½ inches for sixty-six fixtures or less.
3 inches for one hundred fixtures or less.

If the house drain receives the soil, wastes and rain water, the following sizes should be used:

4 inches for 118 fixtures or less.
5 inches for 216 fixtures or less.
6 inches for 343 fixtures or less.



Type of lavatory as at present installed in a modern club building in the United States. This is the general lavatory in the University Club of Chicago. The plate is reproduced through the courtesy of Jas. B. Clow & Sons, Chicago.

2 inches, twenty fixtures or less.
2½ inches, thirty-four fixtures or less.
3 inches, fifty fixtures or less.

If the flow is two in one hundred and the drains receive wastes and rain water only the following sizes should prevail:

2 inches for twenty-nine fixtures or less.
2½ inches for forty-eight fixtures or less
3 inches for seventy fixtures or less.

If the grade is four in one hundred the following sizes should be used:

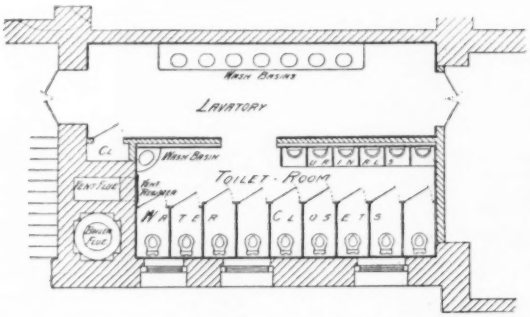
7 inches for 474 fixtures or less.
8 inches for 716 fixtures or less.
9 inches for 950 fixtures or less.
10 inches for 1216 fixtures or less.
11 inches for 1585 fixtures or less.
12 inches for 1950 fixtures or less.

In case the grade is four in one hundred the following sizes should be used:

4 inches for 238 fixtures or less.
5 inches for 435 fixtures or less.
6 inches for 731 fixtures or less.

7 inches for 1060 fixtures or less.
8 inches for 1400 fixtures or less.
9 inches for 1891 fixtures or less.
10 inches for 2433 fixtures or less.
11 inches for 3133 fixtures or less.
12 inches for 3900 fixtures or less.

Soil Pipe.—The soil pipe used in any club building should be of extra heavy and should weigh not less than 5½ lbs. per foot for 2 inch, 9½ lbs. for 3 inch, 13 lbs. for 4 inch, 17 lbs. for 5 inch



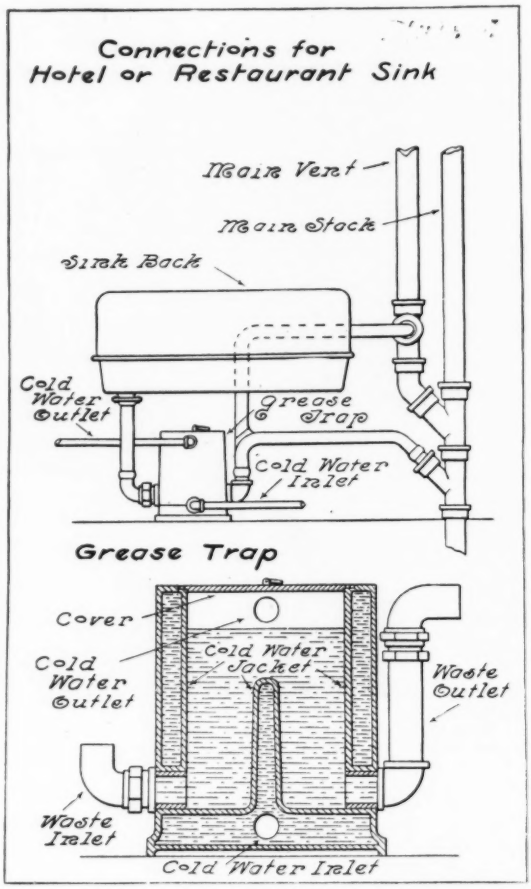
In all general toilet rooms the lavatories should be separate from the room containing the urinals and water closets. This is an excellent design for such an arrangement and is taken from "Sanitary Engineering of Buildings" by Wm. Paul Gerhard, C. E.

and 20 lbs. for 6 inch pipe. Every length should be stamped "Extra Heavy," and the maker's name or mark should be placed thereon. The sizes of soil pipe used in club buildings should not be less than 4 inches in diameter and it should extend through and above the roof. The connections between a soil pipe and house drain should be made with a Y with cleanout at end and a ⅛-inch bend or Y on the straight run or on short branch drains with long els or foot rests having cleanouts on top.

The soil pipe stack receiving the discharge of any fixtures on any floor above the first floor should be extended full bore at least one foot above the highest part of any pitched roof, and eighteen inches above any flat roof; and in case there is a roof garden on top of the club building it should be extended at least eight or ten feet higher than the roof. In case branch soil pipes are extended to different parts of the building, branches twenty feet or more in length should be extended full size above the roof. If they are less than twenty feet in length these branches may be returned their full size to the main soil pipe vent. The joints in this soil pipe should be made with oakum and molten soft pig lead properly caulked and smoothed; but one pouring of lead should be used, as it is impossible to make a connection between two pourings of lead in a soil pipe joint.

Vent Pipe Stack.—The system of vent pipes in club house buildings can be made of galvanized iron, brass, copper or lead, in case the pipes are smaller than 2 inches in diameter. If larger than 2 inches in diameter they may be made of standard or extra heavy soil pipe. The design for the plumbing should provide a simple vent system with as little horizontal pipe as possible, and the continuous or circuit venting system should be adopted when possible.

Rain Water Leaders.—For purposes of ultimate economy the rain water leaders should be be made of copper. They should, as a rule, be trapped where they enter the house sewer.



In the club kitchen where large quantities of grease are produced a grease trap is an important feature. This sketch was taken from "Modern Plumbing," illustrated by R. M. Starbuck and shows the connection he recommends for a hotel or restaurant sink and a section of the grease trap. This same article is proper in a club kitchen.

Water Connections.—The water connection from the street water main to the club building must be placed at a point marked on the plan by the architect and the water department will usually furnish the proper size of tap, and as club buildings use great quantities of water the service pipe should be ample in size. The following table shows the supply of water which may be delivered through pipes of different sizes at 25 lbs. pressure:

¾-inch pipe, 940 gallons per hour.

Barber shops must have the very latest types of lavatories with shampooing cocks with mixing chambers. This illustrates an up-to-date club barber shop. It is that of the University Club of Chicago, and we reproduce the plate through the courtesy of Jas. B. Clow & Sons, Chicago.

1 -inch pipe, 1900 gallons per hour.

1¼-inch pipe, 2280 gallons per hour.

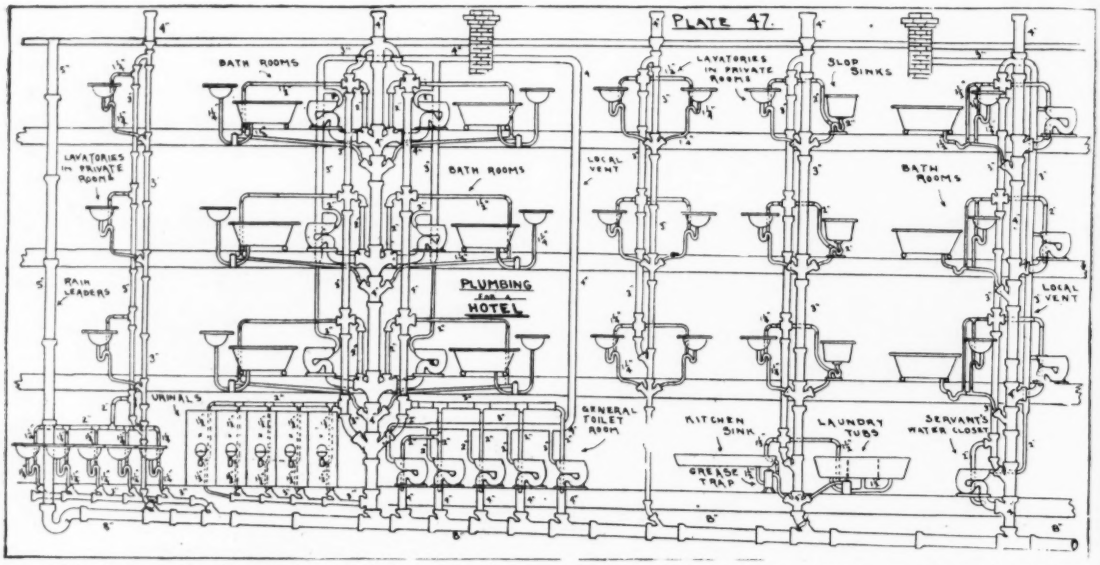
If the pressure is 35 lbs., a 1½-inch pipe delivers 3360 gallons per hour and a 2-inch pipe will give 4150 gallons per hour. In this case the length of the service pipe is estimated as 58 feet.

Water Pipes.—The vertical lines of water piping should be run so that they will not show but must be accessible and readily reached. Sleeves should be placed in walls and floors for supply pipes to pass through. Under no circumtances should supply pipes be run outside wall or in chases in outside walls, unless adequate protection against freezing is provided. As club buildings are frequently elaborately decorated, water supply pipes should not be run horizontally over ceilings which are expensively treated.

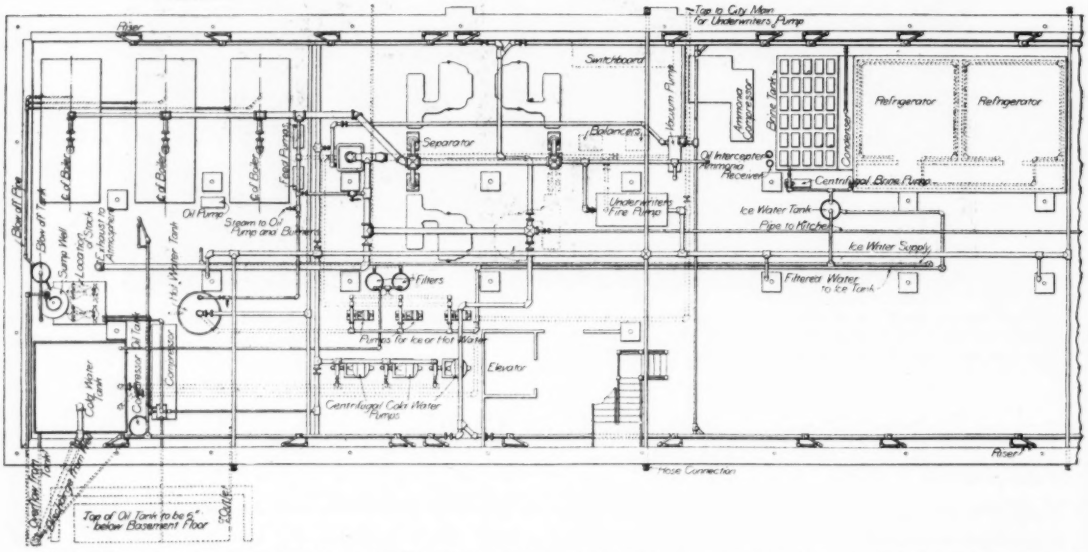
The material from which water supply pipes are usually made is lead, galvanized wrought iron, or tinned brass. The same consideration of quality, weight and thickness should apply here as in any other portion of the plumbing system. The water supply piping should be very carefully supported to prevent sagging and breaking away from its foundations, and the entire system must be designed to be completely emptied in case of necessity. In running supply pipes horizontally the grade must be kept accurate or air binding will result. Controlling valves should be placed on all lines of water supply and these should be very plainly labeled with indelible and indestructible labels, so that they may always be recognized. Considerable annoyance is caused by thoughtlessly running water supply pipes carrying cold or chilled water through the bed rooms and

living rooms. The condensation from the air of the room on the cold water pipes causes dripping, which is very annoying. If the water supply pipes are of lead they should be joined by wiped joints of iron pipe and not allow the use of steel pipe. Malleable iron fittings should be used.

In clubs it will be found very desirable to maintain a duplicate set of pumping machinery so that



This shows a plumbing design for the plumbing in a small hotel. It is taken from "Fifty Plumbing Charts" published by "Domestic Engineering" and sold at twenty-five cents.



The piping for the mechanical equipment of a club is sometimes an important and complicated piece of work. The accompanying illustration is taken from the "Engineering Record" and illustrates the mechanical plant of the Denechaud Hotel of New Orleans.

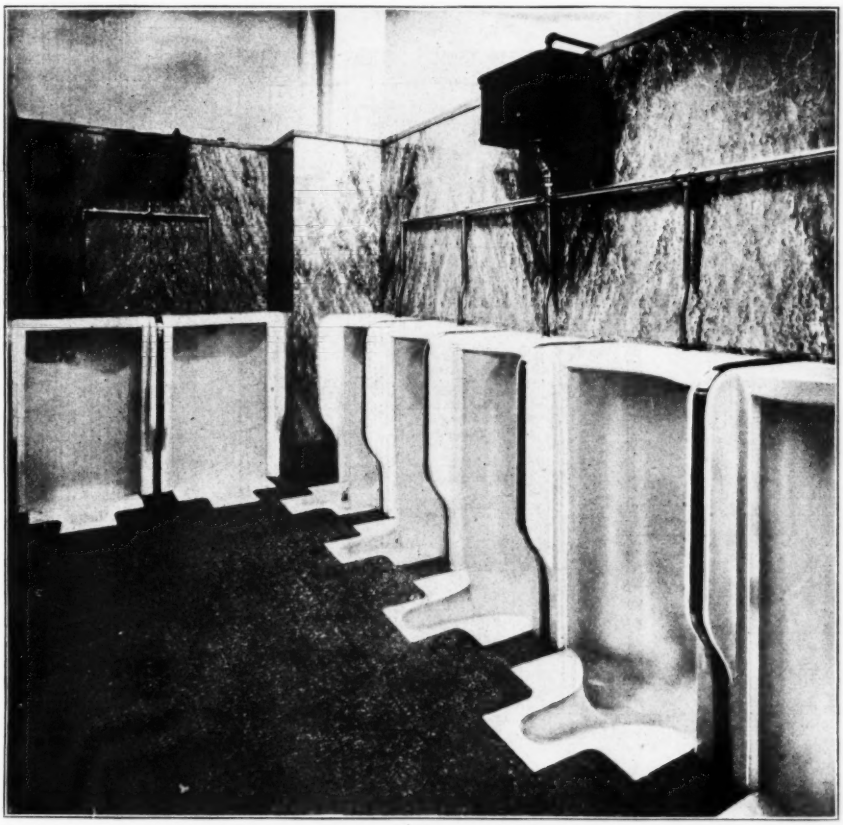
the strongest kind. If of brass the threads should be so cut and fitted that they will not show or project when the pipe is screwed home. When wrought iron pipe is used be careful to use genuine wrought iron pipe and not allow the use of steel pipe. Malleable iron fittings should be used.

In clubs it will be found very desirable to maintain a duplicate set of pumping machinery so that in case one pump should break down the other can be utilized to supply water to the building.

Tanks.—In large club buildings tanks are usually supplied for the storage of water supply. Iron

beams should be used to support tanks placed upon roofs, and these tanks should have covers and should be well ventilated. Tanks for drinking water should be of wood lined with tinned copper, or they may be of cast or wrought iron. They should not be lined with lead. The overflow pipes from the tank should not connect directly to any soil or drain pipe or house sewer and there should be no possible connection between the tank used for household water supply and the tank used for the water supply for flushing plumbing fixtures. It is sometimes desirable to have a storage tank which will hold a supply of water for at least one day's use. Sometimes water mains burst or they have to be shut off for repairs, and this storage tank would keep the club from a water famine. Under water pressure systems these tanks could be located in the subbasement.

Another feature of water supply which is coming to be considered necessary in club buildings now is the supply of ice cold drinking water to every room. As clubs are usually provided with mechanical refrigerating systems, this is a simple matter. By providing a rotary pump and locating it upon the chilled water circulation pipe, ice water may be circulated constantly throughout the building.



Type of general urinal as installed in a modern American club building. Note concrete floor, solid porcelain urinal, offering no opportunity for dirt to creep in the joints, and the marble wainscoting. This is a picture of the urinal as supplied to the University Club of Chicago, and the plate is reproduced through the courtesy of Jas B. Clow & Sons, Chicago.

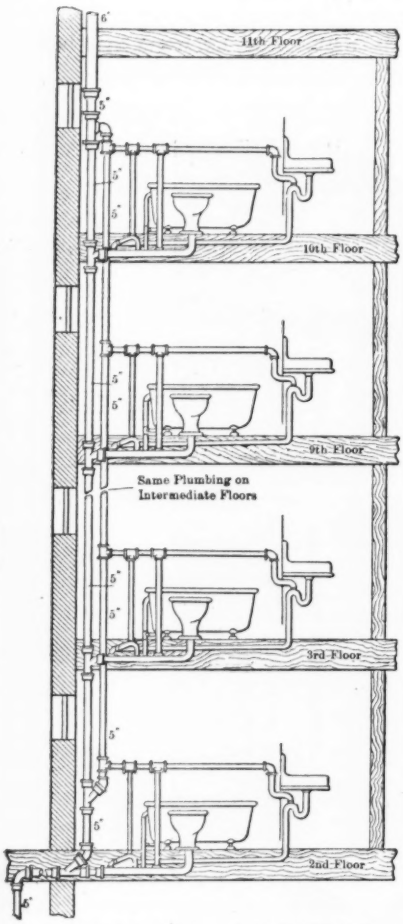
Water pipes supplying upper floors should be carefully graded in size so that the use of the faucets on the lower floors will not rob the supply from faucets above.

In many locations where the water supply is very hard it will be found desirable to install a water softener system.

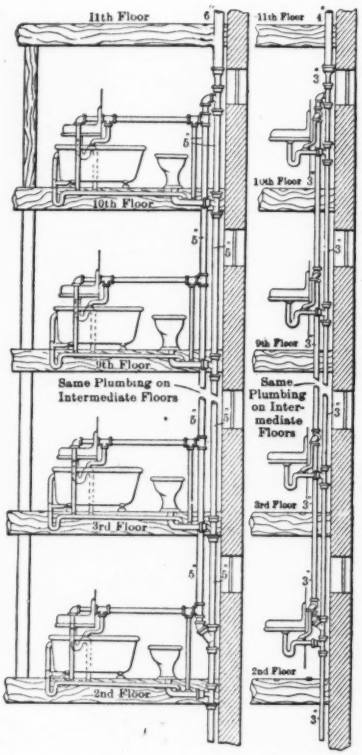
The Gas Service Connections.—This should be located at a point as marked upon the permanent plans. Shut-offs should be supplied and in refilling

trenches in which gas pipe is laid the greatest care should be exercised not to do the work carelessly, as the ground must not settle, carrying the gas pipe out of plumb, in which case condensation will accumulate and the gas supply made intermittent.

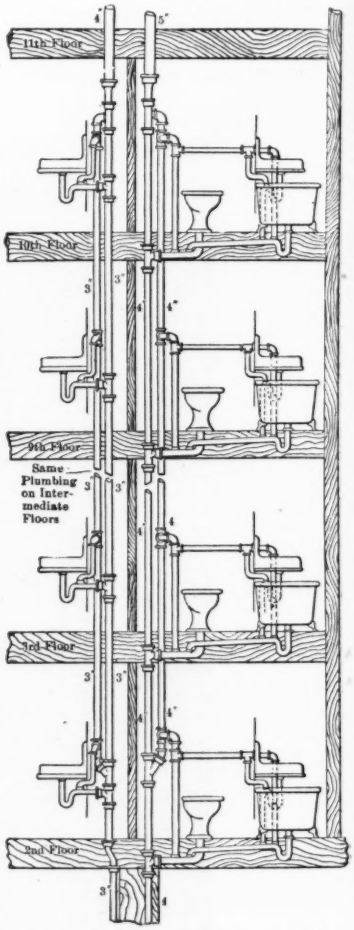
near the checking counter and the lavatories in a room separate, but connecting with the urinals and closets. The principal consideration in locating toilet rooms is to get natural light and adequate ventilation and so far as possible they should be lo-



A sketch of tier of bathrooms in the Raleigh Hotel in Washington, D. C., which shows ten bathrooms one above the other with a simple piping arrangement, showing the advantage of the vertical placement of a series of bathrooms. The sketch is reproduced from the "Plumbers' Trade Journal."



A series of bathrooms and of lavatories, one above the other on ten floors in the Raleigh Hotel in Washington, D. C., showing vertical placement of rooms, thus insuring simple piping. The sketch is reproduced from the "Plumbers' Trade Journal."



A vertical series of nine bathrooms as constructed in the Raleigh Hotel, Washington, D. C., and showing arrangement suitable for a club building. This illustration is reproduced from the "Plumbers' Trade Journal."

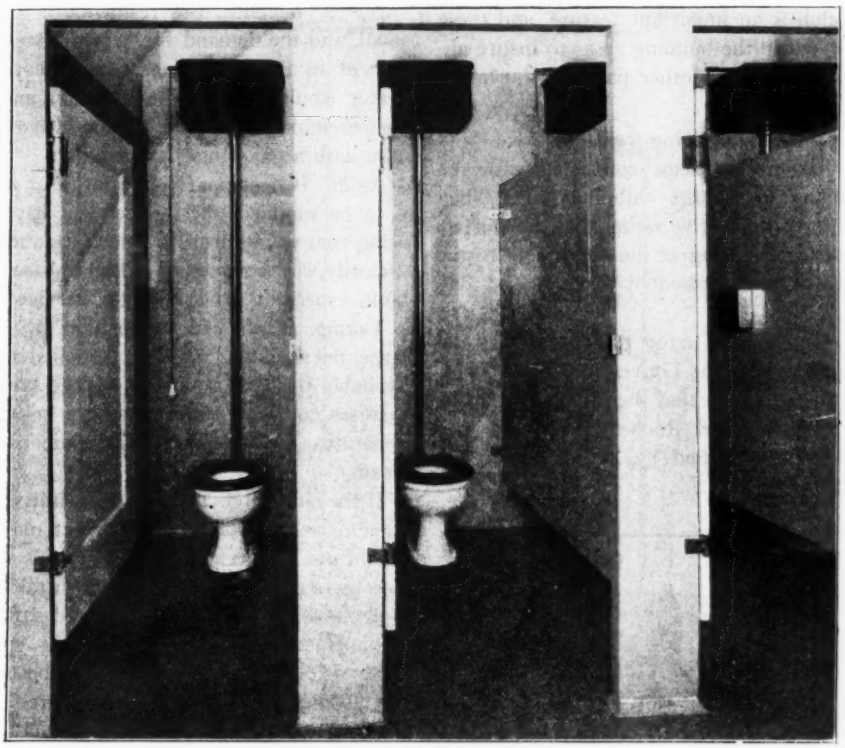
Usually wrought iron pipe is used for gas piping with galvanized malleable wrought fittings. Gas contains vapor which condenses and which traps pipes unless they are accurately run with proper fall to a common point.

Toilet Rooms.—In clubs much the same principle must be observed in locating toilet rooms as prevails in hotels. A general toilet room will be

cated so that the soil and waste stacks shall not be complex in character but simple; and toilet rooms should be placed over each other in order to avoid a multiplicity of stacks and vents.

The various departments of a club, such as billiard-room, bowling-room, gymnasium, card-room, barber shop, and other places where men meet in common, should each be provided with toilet rooms

in which a lavatory, urinal, and closet are provided. All of these toilet rooms should, where possible, have cement or mosaic floors and should drain into a floor drain, and the walls should be of impervious material so that they may be thoroughly cleaned with soap and water. In all toilet rooms adequate ventilation should be provided. As there are always great numbers of employes in connection with large clubs, toilet rooms must be provided for them and separate rooms must be provided for the superintendents and heads of departments and the more menial help. In all of these high grade material should always be used.



Type of water closets suitable for a modern day club. This is a picture of a portion of the general toilet room of the University Club of Chicago. The plate is reproduced through the courtesy of Jas. B. Clow & Sons, Chicago.

In the kitchen, bakery and scullery of a club much plumbing is required, and in the bakery there should be a hot and cold, and ice water supply; butlers' pantry sinks are placed in serving rooms adjoining dining-rooms; and in connection with pantries located in various parts of the club building hot, cold and ice water and waste connections must be provided.

Most of the sleeping rooms in a modern club will be provided with private bathrooms and the design of these, as in hotel plumbing work, calls for a great deal of ingenuity in order to secure a vertical arrangement of bath rooms, so that one will be directly above the other.

It is found that by providing each sleeping-room with a private bathroom, containing lavatory, closet and bath, that the cost of service is very much reduced, as the work of caring for the room is very much minimized.

Fixtures.—In selecting fixtures for toilet rooms in club buildings the building committee should be particularly careful to select only those of the very highest possible grade. In no little detail is there so much annoyance as there is to be found in connection with faulty supplies and wastes to different fixtures. Not only is there a great waste of water, which in itself is a serious matter, club building water supplies usually being run through a water meter, but the annoyance to members of the club by having the supplies to faucets, flushing tanks, and wastes imperfect is very great.

One little item alone is worthy of consideration, self closing cocks are not properly found in a club;

most men like to wash under a running stream and self closing work does not permit this.

Special Feature.—Many clubs are arranged where athletic sports are the principal features. In these the swimming pool, showers, needle and spray baths form a very important feature and in many Turkish and Russian baths are also maintained. The same degree of care should be utilized in selecting all of the fixtures necessary in such rooms, and in furnishing them with adequate light and ventilation.

The provision of toilet facilities for women visitors to the club is an important feature, and these should be located in the building so as to insure absolutely privacy from the other parts of the building.

Conclusion.—The foregoing remarks treat only upon a few of the problems connected with the proper plumbing in a large club building. They are intended to be suggestive rather than conclusive, and to indicate in some degree the importance of the problems which are presented to modern day plumbers.

As we have given so many illustrations of the plumbing equipment in the University Club of Chicago, it is proper to state that the architects of this building were Holabird & Roche, of Chicago, and the plumbing was installed by John Degnan, of Chicago.

This is a view of the plumbing establishment of Wm. Dummage at Carmel-by-the-Sea, one of the most delightfuly picturesque spots in California. It is reached by stage from Monterey, and, on account of its unusual location looking over the sea, is a home and favorite rendezvous of artists. Photograph by our Mr. Winslow.

Typical Installation for Domestic Hot Water

By B. F. Raber, of Lafayette, Ind.

I—Basement Heater Supply where City Water is Soft.

A problem which the average plumber is often called upon to solve is the domestic hot water supply. Just what lines he should follow depends to a large extent upon local conditions.

If, for instance, the residence is comparatively small, and the demand for heated water quite intermittent in its nature, an instantaneous gas water heater would probably be the economical and convenient solution, especially if the kichen is furnished only with a gas range for cooking.

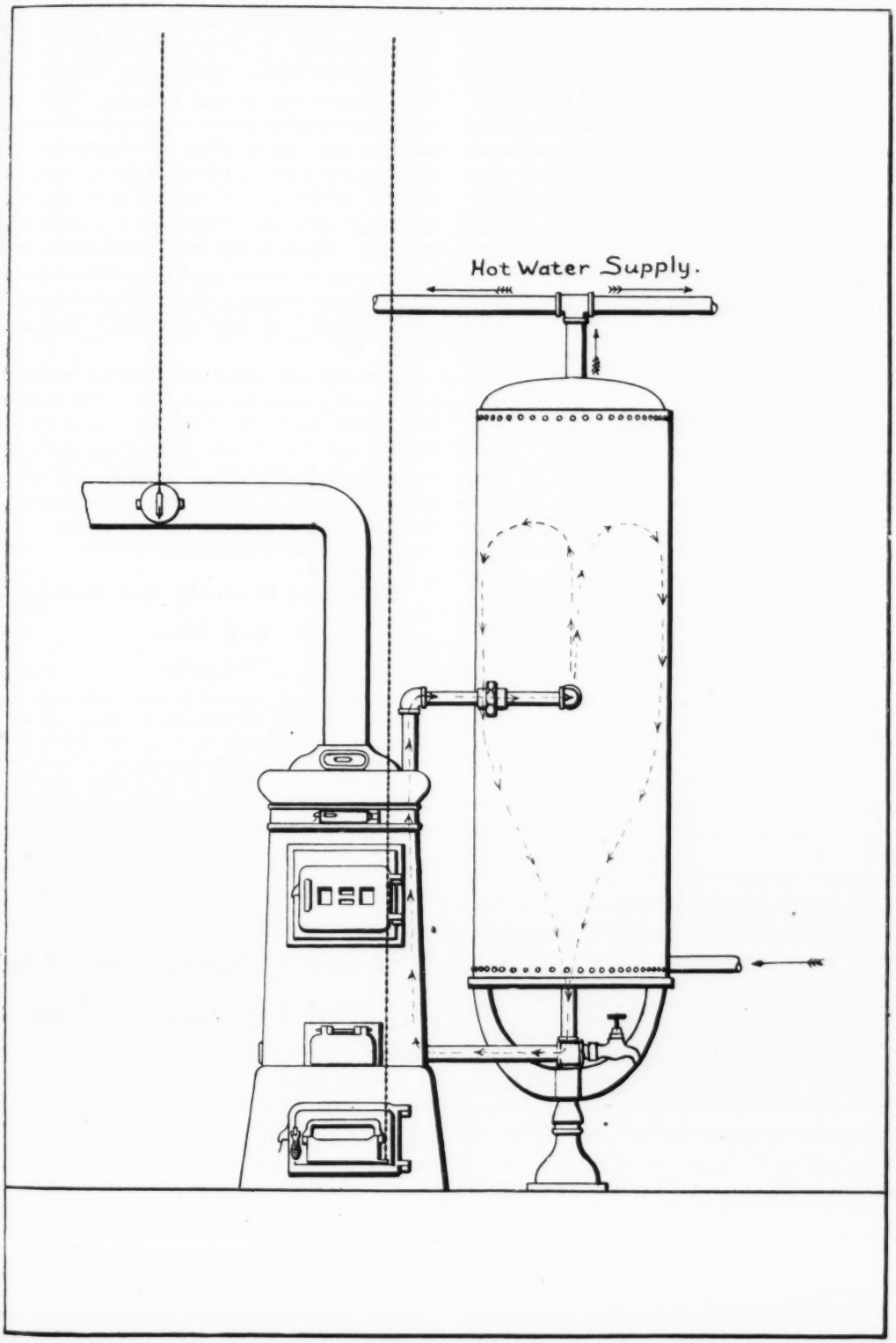
Again, if a comparatively large or double house is to be supplied, the independent basement heater using coal would probably meet demands most satisfactorily, in connection with a basement supply tank, especially where janitor service is provided.

Taking as a third supposition, where a rather large flat building is to be supplied and steam is available the year round, a storage tank containing a steam coil would most likely be selected, and the apparatus provided with automatic control of the steam.

If the city water supply is comparatively free from calcium salts, and hence "soft," it may be used in the heater and tank direct; if this is not the case, then an auxiliary pump is often installed using city water pressure to force the heated soft water from an independent source through its special piping system. So, in general, it should be observed that an installation particularly well fitted for its purpose in one place may be distinctly out of harmony with the demands in another, and in designing a hot water supply the given combination of local conditions should be carefully considered.

The purpose of the three articles of which this is the first, will be the discussion and illustration of such installations as basement heater supply where city water is soft, where it is hard, and the automatically controlled and steam heated supply for comparatively large buildings.

The illustration which appears on the opposite page, shows independent basement heater and tank installation, with coal or gas as fuel (usually the former), and heating, directly, the city water. It contemplates, in the main, a heater as shown in the lower left of the plate and a storage tank to the right. City water enters as shown by the arrow in



Plant showing independent basement heater and tank system for heating city water direct, for domestic use.

the lower right hand corner of the plate and the heated supply is drawn from the highest point of the tank. The circulation through the tank and heater is provided for by the two pipe connections, one joining the bottom of the tank to the bottom of the water space of the heater and the other joining the top of the water space of the heater to a point in the side of the tank at least as high as the top of the heater space.

Where tanks are provided with no side tapping, this second connection of the heater may be run directly upward and join one of the hot water supply mains, with the objection, however, that while the hot water is being drawn circulation through the heater would be disturbed to a greater or less extent.

The relative positions of the heater and tank with regard to height is an important matter. If we consider the plant when no hot water is being drawn it is evident that we have two bodies of water, one in the heater and one in the tank, under the same pressure, and quite free to establish a circulating current as shown by the dotted arrows, as soon as a motive power for this circulation be furnished. Now, if the smaller body of water in the heater is warmed, it will expand and become less dense, that is, weigh less per unit of volume than does the colder water in the tank. We then have the condition of two connected bodies of water with the warmer, and hence the lighter of the two, at a slightly lower level. Under these conditions the force of gravity furnishes the motive power for the circulation, for it will immediately begin to transfer the heavier mass of cold water to the lower-most position (in the heater) by means of the lower connection and transfer the lighter mass of warmed water to the highest position (in the tank) by means of the upper heater connection.

In a system of this nature, circulation will be continued by gravity just so long, and only so long, as water is being heated at a level *lower* than the body of cold water. For, imagine the connections flexible, and the heater raised above the tank, the conditions, which gravity seeks to obtain would already exist, i. e., the lightest water at the top and the heaviest below, and there would be no circulation whatever, The proper position for the heater center is about on the same level with, or slightly lower than, the lowest level in the tank. It will then be possible to heat every particle of water in the tank.

That such a simple yet all important matter should be neglected seems almost incredible, yet one instance of such neglect was brought to the attention of the writer. It seems that the plant was originally installed with a comparatively small tank, so that it lacked some storage capacity. To increase this a plumber proposed the exchange of the smaller tank for one, nearly twice its length, and such change was effected. Since the cellar was exceptionally low, considerable of the new tank was forced to extend below the cellar floor in a small brick-lined pit. But with this new arrangement hardly any increase in storage capacity of hot water was noticeable, and, indeed, it was found quite impossible to fill the tank more than about half full of heated water.

The writer was called upon for an explanation and remedy, and both were easy. The tank was hung from the cellar rafters by strap-irons, so that all parts of it were well *above* the heater, proper connections made, and thereafter no difficulty was experienced in heating the entire contents of the tank.

How to Handle the Stocks and Dies

By Phoenix.

The other day I chanced to pick up a book which had been written on the subjects of heating and on the proper use of tools.

It had a lot of practical wrinkles in it and a lot of other junk that must have been brought over in the same ship with Christopher Columbus, for you can bet your bottom dollar that some of the dope the book contained was never written by a steamfitter.

One "device," or "easy remedy for hard work," amused me very much. There was a drawing of a

Some points on the use of Threading Tools

bench upon which was a vise containing a piece of pipe on which was caught the stocks and dies.

Now against the face of the stocks was braced a piece of plank, one end resting upon the ground while the opposite end, as stated, was braced against the machine which was a plain two-handled affair. The brilliant idea generated by the writer was to secure leverage enough from the plank to force the dies to catch.

Why, the very bummest "jack leg" who could not read a blue print any more than he could talk Chinese would be above such practice as the foregoing, and if he had a die that needed forcing on to the pipe in such

a manner he would "ditch it" in about four seconds. If he didn't have sand enough to stand up for his rights and teach any employer a lesson that would foist off such a tool upon his workmen, he would deserve to be considered a **worm unworthy of notice.**

A fitter or helper who will push and twist and exert all his strength to force a die on the pipe lacks the common sense of a rural goose. Take such a die and throw it on the scrap pile and call for a die that will **"do business."**

If the employer lacks sense, teach him some; **but when he gives you decent tools return the kindness and use the tools right.**

Learn how, if you do not know (and I rise to remark that there are many in the business that **do not know how to take proper care of the tools.) They begin wrong.**

Little force is necessary in starting **any first class die** upon the pipe. In fact, too much force is a handicap and reduces the chances for the die "to catch."

With the solid die there is a peculiar jerk or sideways whirl, acquired only by practice, by which a bum die can be made to **"take hold."** If it will not catch after such a fashion throw it away and save time, strength and money, to say nothing of an endless amount of worry and the ill temper which such a tool will engender in the mind of any journeyman.

Most three wheel pipe cutters will raise quite a rim when they cut the pipe in two. With many dies this rim on the pipe is a great impediment. In fact, a certain class of followers on the cheap tools will not go over this rim, which must be filed down, cut off with a cold chisel or battered down with the hammer. The last way is the quickest and easiest, but **it hardens the end of the pipe** by compressing it, and many times is the direct cause of a split pipe. Besides, if the fitter does not watch the force of his blows he may hammer the pipe too hard and get it out of the shape of a true circle, in which case the die will be very difficult to **"catch."**

If forced to use such stock and dies, I would use a pipe cutter which would not raise a rim, as it would save time even if it did not cut the pipe quite so quickly. When the die is on the pipe, and the thread fully cut, the pipe should be **"reamed out."** If reamed with the die upon the pipe, the true circle will be kept, which is sometimes not the case when the pipe is reamed either before or after the thread is cut. At the time the die is first started upon the pipe a few drops of **good lard oil** should be placed upon the pipe, as it will assist matters greatly with a good die, but with a bum die the oil is an impediment and should not be applied until the die has surely caught, after which in either case the lard oil should be freely applied while cutting up the thread. **Oil is cheaper than new tools. Oil will also assist in getting good threads.** I once worked in the shop of a man who did not believe this. He purchased the cheapest kind of oil, gave every workman the smallest oil can he could get, and put the supply under lock and key. What happened to his tools does not need telling, **and when the job was fired up, two journeymen were over three weeks in calking up the leaks.**

He was a "penny wise, pound foolish" employer, and got exactly what he deserved, and it **was entirely his own fault.**

Some journeymen prefer a solid die and will use no other kind. For myself I prefer the adjustable die and one that **does not have to be backed off the pipe** when its work is completed. It requires some sense, and a little practice, to be able to use such a tool successfully, but the results in the time, muscle and temper saved, more than balance any difficulties at first encountered.

A good die should "catch" almost instantly. It should turn up evenly and not "hang" at any portion of the game. It should free itself from chips. With such a die a moderately strong boy sixteen years of age should be able alone to cut a thread upon a two-inch pipe. Years ago this would have been considered impossible, but today tools have been perfected to an extent where a man does not have to weigh 200 pounds in order to be a steamfitter. A stock should not be too heavy nor arranged in a complicated manner, and it should be constructed so that the oil will reach the teeth easily and have room enough to enable the chips to be easily freed and not constantly dropped into the thread which is being cut, as the chips, getting in the way of the die's teeth, will be pulled under and spoil the thread.

A correct device of this kind will be easily adjustable so that the pipe may be threaded either above or below standard.

Such tools are costly and deserve proper care. A separate box should be provided for their storage, which will fit into the tool chest. The machine should be taken apart several times each season, thoroughly cleaned, oiled and put in good working shape. It should be wiped up each night after the day's work is done, and never, under any circumstances, allowed to accumulate a lot of gum and hardened oil which will always interfere in every way with its proper working.

It is not necessary to hammer or pound such a tool nor to slam it up against the pipe to make it "catch," as it will do so easily if the journeyman uses sense. The same rule holds good with the hand tools used on pipe sizes above 2 inch, a four or eight-inch thread being easily cut by one man alone in from six to ten minutes' time, or even less.

A good tool does not need to be favored, but it does require to be treated "on the level." This means that putting it through, when running on bum or split pipe, or slamming it on hard enough to break the teeth, or expecting it to work freely when filled with mud and chips or badly rusted are not the things which a tool requires and are simply points which are due to the neglect and general cussedness of an inefficient or careless workman who deserves to be **"fired."**

Clothier—"Were you pleased with the overcoat which I sold you?"

Customer—"Oh, yes; all my boys have worn it."

"Well, think of that!"

"I do. Every time after a rain the next smaller one has to take it."—Answers.

Questions and Answers

This department is maintained for the use of every reader of "Domestic Engineering." We solicit problems from you and will give them our best attention. In stating your questions please give all of the facts as clearly as possible and when necessary accompany your question with a correct layout of the job.

HOW MANY FEET OF RADIATION PER HORSE POWER.

234.—Detroit, Mich.—To the Editor of "Domestic Engineering." Sir: In figuring the amount of radiation that could be connected to a 25-horse power boiler, how many feet would it be supposed to carry, provided it was in good working order and properly set up?

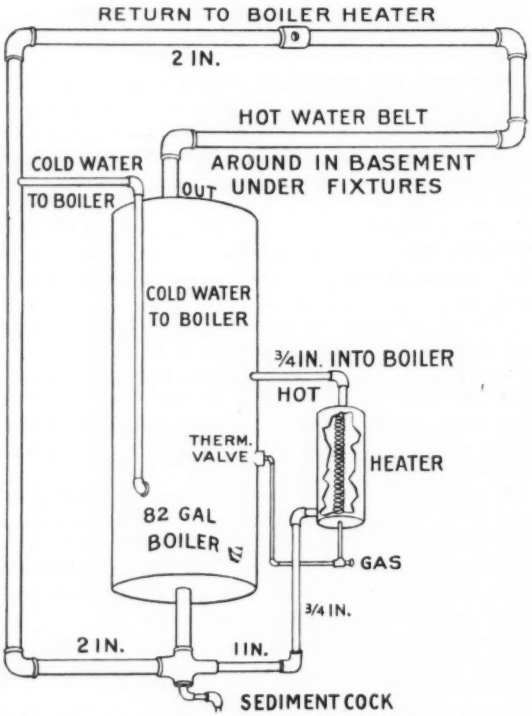
Reader.

It is customary, when figuring radiation by the horse power to allow one hundred square feet for each horse power. In other words, this 25-horse power boiler should carry 2,500 feet of radiation.

WILL THIS JOB WORK?

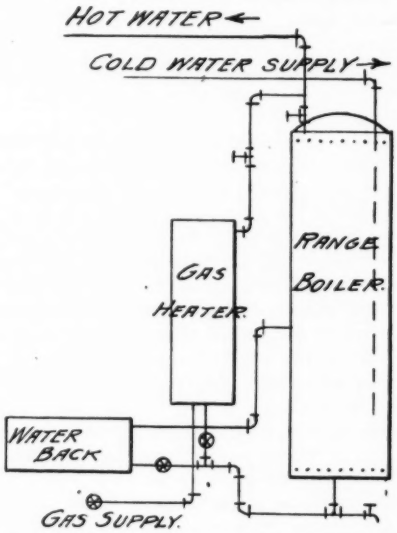
230.—Toledo, O.—To the Editor of "Domestic Engineering," Sir: Can we install a system as shown by sketch enclosed, for furnishing hot water for use in a residence, for bath, kitchen and laundry? Would it work properly by connecting up 80 gallon boiler and coil heater with thermostatic valve as shown, by running 2-inch belt around basement and return by 2-inch pipe into bottom of boiler, taking supply to fixtures from top of main as is done by a one-pipe steam heating system, and return from fixtures through eccentric Tee-fittings into same main and returning through same pipe to boiler? Would such a job work right? Would this return and circulation have any effect on the thermostatic valve and retard its efficiency as regards regulating the flow of gas, or the heating of water, etc.

G. L.



Plan for system to furnish a residence with an ample supply of hot water, from sketch by G. L.

We have several opinions of our own regarding the possibilities of this installation, and should like to have an expression from some of our readers who have followed this department. In regard to the gas connection we republish a sketch showing proper connections of water back and gas heater.



Sketch showing proper connections between boiler and gas water heater or water back.

WANTS REMEDY FOR DAMP CELLAR.

236.—Elmira, N. Y.—To the Editor of "Domestic Engineering." Sir: One of my customers having a very damp cellar has applied to me to remedy it, and I would be glad to get any suggestions that you can make.

A.

It is not stated whether or not the cellar is cemented. If not, the first thing to do is to put in some sub soil drains. These should be trapped from the sewers or house drains, provided the city ordinance allows such waters to be run into the sewers. A good reliable back water trap should be installed to prevent the water backing up from the sewers, and it would be a first class idea to put in an automatic cellar drainer to guard against emergencies. A cellar arranged as outlined above should be in first class shape and be a "joy forever" to its owner.

Warned in Time.

"Hi, Bill; don't come down this ladder, 'tisn't there."
—Weekly Telegraph.

WHOLESALE PLUMBING AND HEATING NEWS

EASTERN SUPPLY ASSOCIATION'S ANNUAL MEETING.

The Eastern Supply Association held its annual meeting at the Hotel Astor in New York City on Wednesday and Thursday of this week. The meeting was well attended and several important matters were considered. The election of officers for the ensuing year was held also at this meeting, and it resulted as follows:

President, P. M. Beecher, Syracuse, N. Y.
1st Vice-president, John A. Murray, New York.
2nd Vice-president, F. H. Locke, Boston, Mass.
Treasurer, F. A. Bucknam, New York.
Secretary, Frank S. Hanley, 261 Broadway, New York.

COLUMBUS BRASS CO. BUYS LARGE PLANT.

The Columbus Brass Company, of Columbus, O., has purchased a large plant, 50x580 feet, in that city, which it will equip with new machinery for manufacturing the Columbus steel tank.

CAMDEN POTTERY BUILDS ADDITION.

The Camden Pottery Company, of Camden, N. J., has begun the erection of an addition to its plant at Mt. Vernon and Orchard streets, in that city, which will greatly increase its facilities and enable it to enlarge its output of "Capoco" products.

BUSINESS GOOD WITH NORRISTOWN MAGNESIA AND ASBESTOS CO.

Norristown Magnesia and Asbestos Company, of Norristown, Pa., reports by its general manager, Charles Platt, that business is good with this concern at the present time, and that it has plenty of orders ahead.

BUILD NEW PLANT IN EAST ORANGE.

The A. P. Smith Manufacturing Company, of Newark, N. J., manufacturers of water works equipment, is erecting a new plant in East Orange, N. J., composed of a group of six new buildings, which, when completed will increase its capacity about one hundred per cent.

ARE NOW IN THEIR NEW BUILDING.

Holbrook, Merrill & Stetson, of San Francisco, Cal., announced this week that they are now located in their new building at Sixth and Bluxome streets, in that city. This building is in the wholesale district, and it is located on a spur track on the Southern Pacific which makes transportation an easy and economical matter.

TO BUILD LARGE ADDITION.

The Galard Company, of Newark, N. J., has had plans drawn and will soon begin the erection of an addition to its factory at 327-341 Sixth avenue in that city. The new building will be 230x125 feet, four stories high, of fireproof concrete construction. When completed it will double the present capacity of its plant. It will adjoin the tracks of the D. L. & W. Railroad, where a siding will provide excellent shipping facilities. Mr. McEvoy, manager of the company, states that the rapid growth of his company's business, since it was established a little more than a year ago, made additional facilities imperative.

MODERN IRON REPORTS STRIKE ENDED.

The Modern Iron Works, of Quincy, Ill., reports, by E. L. Walcott, its general manager, that the strike of its molders and core makers has been settled amicably, and that its entire force is now at work again. The company was handicapped for a time, but expects to catch up with its back orders within the next two weeks.

NEVER SPLIT BUILDS NEW PLANT.

The Never Split Seat Company, of Evansville, Ind., is erecting a new plant of reinforced concrete construction on a five-acre tract of land on the Belt Line in that city. The main building is a two-story structure, 400 by 60 feet, which in addition to dry kilns and power plant, will give the factory a floor space of 50,000 square feet. The equipment will be modern throughout, the power plant consisting of a 200 h. p. engine with a boiler of the continental type of fire driven dynamos which supply the machinery with power through individual motors. The plant is to be completed by January 1, 1910, and will have a capacity of 1,000 seats a day. The Never-Split Seat Company was organized in 1904, and it has outgrown its present quarters with a steady and rapid increase in its business.

ILLINOIS CHAPTER'S ANNUAL MEETING.

The Illinois Chapter of the American Society of Heating and Ventilating Engineers held its annual meeting at Vogelsangs, Madison street, Chicago, on Monday evening, October 11, and elected the following officers for the ensuing year:

President, Edmund F. Capron.
Vice-President, N. L. Patterson.
Treasurer, August Kehm.
Secretary, John F. Hale.
Board of Directors: R. A. Widdecombe, James Mackay and J. P. Dugger.

The reports made by the secretary and treasurer and the board of governors showed a very healthy condition of this body and from the attendance at this first meeting of the year, it is clear that the interest in the chapter's affairs still continues, and a prosperous year is looked for. There are a number of interesting papers in course of preparation, and several of the meetings during the present year will probably be of a public nature, with speakers of prominence in the engineering world.

WORK FOR GOOD ATTENDANCE AT THE SIXTEENTH ANNUAL MEETING OF A. S. H. V. E.

W. M. Mackay, secretary of the American Society of Heating and Ventilating Engineers, has sent a letter to the members of the society informing them that it is the desire of the board of governors that as many of the members as can possibly do so should attend the society's sixteenth annual meeting in New York City, on January 18, 19 and 20, 1910, and contribute to its success by preparing a paper on some subject

connected with heating or ventilation, or by furnishing some topics for discussion which would prove of interest to the membership and of value in the proceedings. Papers to be presented at this meeting should be in the hands of the secretary as early as possible, so that they can be passed on by the committee on publication, cuts prepared, advance copies printed and forwarded to the members in time to allow them to prepare a discussion on them before the meeting. Secretary Mackay's address is: P. O. Box 1818, New York City.

THE METAL MARKET

GREAT DEMAND FOR FOUNDRY IRON.

New York, N. Y.—The heavy volume of orders which is being placed with the steel works is reflected in further buying of raw material by some of the leading independent works, says The Iron Age. Steel founders are in the St. Louis and Chicago markets for large blocks of basic pig for next year, while one steel mill is out with an inquiry for 12,000 to 18,000 tons of low phosphorus iron. The cast iron pipe makers continue to be persistent buyers, but find the market bare of low grades. A leading interest is seeking relief abroad, and has bought one cargo of from 4,000 to 5,000 tons of Middlesborough No. 4 for delivery on the Delaware river at private terms. A large Chicago founder is in the market for 16,000 to 20,000 tons, and there are intimations that agricultural implement manufacturers would take from 30,000 to 40,000 tons of foundry iron for the balance of this year and for the first part of 1910, at a satisfactory price. A good share of the business put through during the week has been taken by furnace men who have been satisfied to put back long orders on their books for delivery during the first and second quarters at the present level of prices.

STEEL TRADE CONTINUES TO IMPROVE.

New York, N. Y.—The steel trade showed further improvement this week. Prices continue strong and the volume of business shows a moderate increase, the demand for finished goods being particularly active. New orders come in constantly for steel billets and for anything like prompt shipment premiums are demanded by the companies. It is reported that a sale of steel billets for immediate delivery has been made at $2 a ton above quoted prices. There is a good demand for steel rails negotiations being under way in a number of instances although the placing of orders has been delayed in some cases. Buying of structural material in the local market shows a further decrease and sales on this line are now quite light.

THE COPPER SITUATION.

New York, N. Y.—While the copper market as a whole has been quiet during the week, there has been a good volume of the metal moving into consumption, with the bulk of the buying being done by brass manufacturers, says John Stanton. It now seems likely that the next few weeks will see a steady market. The decline in prices seems to have reached about rock bottom, and the influences which may bear on the situation during the next fortnight is such that it would bring about an advance in prices rather than a movement in the opposite direction. The reported improvement abroad is a very encouraging feature, and with Europe doing its full part in consumption, the metal market would quickly advance to a much stronger position. In view of the advance in industrial conditions, the universal tendency is to regard the situation optimistically, and for that reason there is no effort to force the metal upon the market.

NEW YORK METAL MARKET, OCTOBER 12.

Copper, Prime, Lake	$13.00
Copper, Electrolytic	12.85
Lead	4.37½- 4.40
Spelter	6.05

CHICAGO IRON MARKET, OCTOBER 14.

Lake Superior Charcoal	$19.50- 20.00
Southern, No. 2 Foundry	19.35
Northern, No. 2 Foundry	19.00

October 14, 1909.

Foundry Iron was same price as the week previous.

NEW YORK OLD METAL MARKET.

New York.—Dealers' buying prices are as follows:

Heavy crucibled copper	$11.50	to $12.00
Light copper	10.00	10.37½
Uncrucibled heavy copper	11.00	11.37½
Plumbers' cocks and faucets	9.00	9.50
Heavy brass	8.25	8.50
Light brass	6.25	6.50
Heavy lead	4.00	4.10

CHICAGO OLD METAL MARKET.

Chicago, Ill.—Dealers' buying prices are as follows:

Clean heavy copper and trolley wire	$11.50 $11.62½
Light copper	10.50
Heavy yellow brass	8.25
Light brass	6.25
Heavy lead	3.90
Tea lead	3.50
Scrap zinc	4.00

CONVENTION DATES.

October 21, 1909.—Fall meeting of the **Massachusetts State Association of Master Plumbers,** in Worcester, Mass. The sessions will be held in Thule Hall, 184 Main street.

October 27, 1909.—Annual meeting of the **Central Supply Association,** at the Southern Hotel, St. Louis, Mo.

January 18, 19 and 20, 1910.—Sixteenth annual meeting of the **American Society of Heating and Ventilating Engineers,** in New York City. The sessions will be held in Engineering Societies Building, 29 West 39th street.

March 8 and 9, 1910.—Annual convention of **New York State Association of Master Plumbers,** in New York City.

ASSOCIATION NEWS

PRESIDENT NOLAN ANNOUNCES COMMITTEES.

Washington, D. C.—Walter D. Nolan, president of the National Association of Master Plumbers, has announced the membership of the various committees for the ensuing year as follows:

Essay Committee: Charles J. Baab, chairman, 346 South Main street, Wilkes-Barre, Pa.; George F. Kirkhoff, 11 North New Jersey street, Indianapolis, Ind.; H. L. Nevin, 416 Second street, Louisville, Ky.; C. C. Hartwell, 213 Baronne street, New Orleans, La.; John B. Smith, 40 Main street, Lewiston, Maine.

Legislative Committee: James F. P. Carey, chairman, 860 North avenue, Baltimore, Md.; J. L. Hague, 1420 Nicolett avenue, Minneapolis, Minn.; S. H. Morgan, 273 Jefferson avenue, Detroit, Mich.; Frank J. Fee, 415 West Fortieth street, New York City, N. Y.; J. C. Hamilton, 16 West Third street, Tulsa, Okla.

Sanitary Committee: David Craig, chairman, 70 Broad street, Boston, Mass.; Fred Fox, Jr., 104 East Eighth street, Chattanooga, Tenn.; Joseph Netzer, 1311 Lincoln street, Laredo, Texas; C. Manning, Jr., 1443 East Main street, Richmond, Va.; S. A. Carnes, Laurel, Miss.

Insurance Committee: Glendon A. Richards, chairman, 42 West Bridge street, Grand Rapids, Mich.; D. J. Hickey, 912 Rush street, Chicago, Ill.; H. F. Baillet, 191 Clinton avenue, Newark, N. J.; Joseph A. Weldon, 305 Wood street, Pittsburg, Pa.; H. T Kilpatrick, 1214 Pine street, St. Louis, Mo.

MASSACHUSETTS MASTER PLUMBERS TO MEET IN WORCESTER.

Worcester, Mass., October 14 [Special].—The fall meeting of the Massachusetts State Association of Master Plumbers will be held at the Thule Hall, 184 Main street, in this city on Thursday, October 21, at 11 a. m. The delegates to the national convention will render their report at this occasion, making known the changes in the national constitution and the recommendations of the national officers.

MANHATTAN PLUMBERS APPOINT COMMITTEES TO ARRANGE ANNUAL BALL.

New York, N. Y.—The following committee was recently appointed to arrange for the annual ball of the Manhattan Branch Association of Master Plumbers: T. A. Hill, I. J. Brown, T. S. Cochrane, Jr., T. J. Toumey, Cuno Muller, G. H. Creasey, B. F. Donohoe, F. B. Lasette, T. J. Cummings and J. L. Murphy. It has been practically decided to hold the ball on Wednesday evening, December 1, at Terrace Garden, East Fifty-eighth street. The boxes for the ball will be auctioned on November 16, and the past presidents will receive the usual honor on that night.

NEW YORK STATE PLUMBERS FIX DATE FOR CONVENTION.

Buffalo, N. Y.—The board of directors of the New York State Association of Master Plumbers met here on Thursday, October 7, and selected New York City as the place of meeting for the next annual convention of that association, which will convene on the second Tuesday and Wednesday in March. The board also endorsed the "New York State Plumber," the official organ of the association, the second edition of which was published last month. The visiting members were gloriously entertained by their local brothers, and altogether a three-day visit was made to this beautiful city. Motor cars were chartered for occasional trips around the boulevards and parks, and many impromptu feasts were enjoyed. On one of these occasions Frank Beyer, a former state president, entertained his visiting guests at his home. The following members made the trip: T. A. Hill, T. S. Cochrane, Jr., Isaac J. Brown, Bart Donohue and Thos. E. O'Brien, all of Greater New York; Fred Fladd, of Rochester; B. Joseph O'Donnell, of Syracuse; Chas. Campbell, of Watertown, and John Sheehan, of Schnectady. On the return trip the New York members stopped at Elmira upon the invitation of J. P. McCann, of McCann's Tours, who tendered a dinner to the Denver Club Knight Templars there. The dinner was held at R. H. Walker's Happy Thought, and Tommy Cochrane said it was the best duck he ever ate. When the Chief of Police, who was present, learned that the party came from New York, he ordered the "hurry-up" wagon to carry them to the station for the good of the community.

PLUMBING LEGISLATION

WANT PLUMBING ORDINANCE CHANGED.

New Haven, Conn.—An effort is being made by the members of the board of health, acting with the master plumbers of the city, to have the ordinances relating to plumbing and ventilating changed slightly. The matter came up through the request of the contractors who are working on the new public library building for permission to omit certain vents which both the contractors and the board agreed were superfluous, but the omission of which the board had no authority to sanction.

CITY FATHERS HESITATE TO PASS AMENDMENT TO PLUMBING LAW.

Aurora, Ill.—The new amendment to the plumbing ordinance came up for passage a second time at the city council's meeting this week, only to be laid over again. The new ordinance was drawn to conform to the state law passed by the legislature last spring. This state law provides that master plumbers in cities with a population of 10,000 or more shall pay $50 the first year and $10 a year thereafter for a license to engage in the plumbing business. They must also pass an examination when they first take out licenses as master plumbers. In accordance with the ordinance now in force master plumbers pay the city of Aurora $5 when they get their licenses and that is the last fee they pay.

Vicksburg, Miss.—W. H. Bruser has secured the contract for the steam heating in the new annex to the hospital.

PERSONAL MENTION

A. G. Cripps, vice-president and sales manager of the Prudential Heating Company, Akron, Ohio, was a visitor to the Chicago trade this week.

Ray J. Hillenbrand, a prominent master plumber of Cincinnati, O., has been nominated for councilman-at-large in that city on the Republican ticket.

M. D. Helfrich and H. F. Weaver, treasurer and secretary, respectively, of the Peerless Selling Company, of Evansville, Ind., have left for a two months' trip on the Pacific coast.

Alex. Buchman, Sales Manager of the Glauber Brass Manufacturing Company, of Cleveland, O., started on his semi-annual western trip this week, on which he will call on a few of his particular old friends in the business. Alex. is a pioneer in his line and most interesting are the experiences he can relate of the days when he, too, was a regular wanderer over the map. But he has never been forgotten.

E. M. Hartung, who recently sold his plumbing business at 1321 Sedgwick street, Chicago, to Mr. Younggren, has decided to locate in Madison, Wis., and he is this week opening an up-to-date establishment at 625 University avenue. Mr. Hartung is a member of the Chicago Master Plumbers' Association, and he leaves a large circle of friends in this city who wish him all possible success in his new venture.

George Stoddard, a master plumber of Berkeley, Cal., and a member of the Executive Committee of the California State Master Plumbers' Association, made the trip recently to the Yosemite Valley with Frank J. Klimm of San Francisco, and was much impressed with the idea of holding the convention there next spring. Extremely low rates have been secured and it is practically settled that this will be where the convention will be held. The trail trips through the valley were taken by the visitors and their experience in California's wonderland will be told at the next meeting of the State Executive Committee, which will be held in San Francisco just before Portola week.

COMPLETES FORTY YEARS AS A PLUMBER IN GRAND RAPIDS.

George Thompson, senior member of the George Thompson Plumbing Company, of 155 Monroe street, Grand Rapids, Mich., has just completed forty years as a plumber in that city. Mr. Thompson learned the trade in Toronto and worked as a journeyman in Buffalo, Cleveland and Detroit until 1869, when he came to Grand Rapids, a place which was not then on the map, and worked there as journeyman until the spring of 1881, when he started in business on his own account in the basement of the Morton House. Here he remained until 1894, when he moved his business to its present location at 155 Monroe street. While Mr. Thompson will still remain on duty, it is his intention to "ease up a bit," and let the younger members of the firm shoulder a larger portion of the more strenuous part of the business. These members are George Thompson, Jr., and L. J. Butler.

NEW YORK NEWS

Brooklyn, N .Y.—Louis Kress, of Cortelyou road, has contracts for the plumbing and gas fitting in fifty-three residences in Flatbush.

Brooklyn, N. Y.—William A. Hill, of 27 Ashland place, will do the plumbing in two apartment houses in Coney Island, two at Flatlands and two more in Flatbush.

Brooklyn, N. Y.—McMonigle & Nugent, formerly at 299 Sumner avenue, have moved their plumbing and heating business across the street to 298, where an attractive show room has been fitted up.

Buffalo, N. Y.—T. H. Stamp, formerly of the plumbing firm of McArthur & Stamp, has severed his connection with that firm and has engaged in business on his own account at 280 Pearl street. He would be glad to hear from manufacturers and dealers in plumbing goods.

Brooklyn, N. Y.—The Louis P. Gfroerer Plumbing Co., of 660 Grand street, has some nice work on its books that will keep a complement of men busy for some time. Among other work this company will do the plumbing in Saint Agnes Academy at College Point, and the plumbing and heating in the H. J. Woronov building on Grand street.

New York, N. Y.—Edward Hunter, of East 146th street, has a number of nice heating contracts on his books of which the following may be mentioned: The Fulton avenue fire station, eight residences on Eleventh avenue for Mr. Stoltz, six houses at Grantwood, N. J., for Mr. Reid, a hot water installation in Mr. Deiner's residence at 217th street and White Plains avenue, and a residence on Morris Park avenue.

PROVIDENCE EXPECTS TO HAVE PUBLIC COMFORT STATION SOON.

Providence, R. I.—A public hearing held last week by the city council committee on public stations was well attended by prominent citizens and officials, who came out strongly in favor of this sanitary convenience. Among the speakers at the meeting were Plumbing Inspector Reuben S. Bemis, who was the first in this city to call attention to the desirability and necessity of establishing public comfort stations here. In the course of his remarks Mr. Bemis said: **"Individual employers and corporations are convinced that sanitary conveniences in shops, mills and stores increase the efficiency of labor by promoting the general health of the employees. Why should not the city profit by their example** and do something to raise the standard of health in Providence?" The committee is fully convinced of the necessity of these conveniences, and it is expected that this city will have at least one public comfort station within the next year.

Fred J. Berg, proprietor of a plumbing and hardware establishment in Meadville, Pa., passed on at a hospital in that city on Friday, October 1, as the result of injuries received when an oil cooking stove in his home exploded. He was in his 39th year, and is survived by his wife and one daughter.

NOTES FROM THE WEST

Merrill, Wis.—The H. R. Fehland Hardware Company has secured the contract for the installation of a new heating plant in Geo. Fuchs' business block on East Main street.

Garden City, Kans.—Hart & Wolking, of this city, have been awarded the contract for the plumbing and heating in the new $35,000 high school building, which is to be erected during the next months.

Davenport, Ia.—The Henry Dunker Plumbing and Heating Company, of 414-416 West Third street, has been awarded the contract for the plumbing and heating in the large residence of W. P. Bettendorf, at Bettendorf, Ia. The contract calls for a forced circulation hot water system, including a complete ventilating system consisting of air washers, electrical driven fans, pumps, etc. This contract is a very large one, but its price has not been given out for publication. The Henry Dunker Company also has secured the contract for the plumbing and heating in the new Register Life office building in this city. C. R. Spink is architect for the Bettendorf residence, and Hansen & Harfst are architects of the Register building.

MIDDLE STATES

Benton Harbor, Mich.—Frank Noble & Company has secured the contract for the installation of a new heating plant in the Bell block.

Cleveland, O.—Becker & Seidel, of Champlain avenue, are installing a vacuum heating system in the new addition to the Hollenden hotel.

Bloomington, Ill.—T. J. Greer, of this city, has secured the contract for the heating in the new Middletown school building. The consideration is $1,650.

Toledo, O.—McGinnis Brothers, formerly located on Cherry street, have moved their plumbing business into improved quarters, around the corner on Superior street.

Cincinnati, O.—The Dauch Construction Company, of this city, has secured the contract for the installation of a heating system in the town hall at Elmwood.

Alton, Ill.—Klunk & Heskitt have secured the contract for remodeling the plumbing system in the Turner Hall building, on Ridge street. The consideration is $521.40.

Cleveland, O.—Geo. E. Hartshorn has been appointed receiver for the General Plumbing Company, of 4622 Outhwaite avenue, upon the petition of the McIntosh Hardware Corporation.

Bucyrus, O.—Henry Meyer, Jr., on East Rensselaer street, has been awarded the contract for the installation of a steam heating system in the St. Joseph's new school building at Crestline, Ohio.

Rockford, Ill.—James McCreath and W. J. Boase have formed a partnership and purchased the plumbing business of J. T. Kirkpatrick, at 322 Mulberry street. The new plumbing firm will do business under the name of McCreath & Boase.

Waukegan, Ill.—Lanyon & Clifford, of this city, have secured the contract for the plumbing in the new township high school at the corner of Jackson street and Glen Rock avenue. Lewis & Kitchen, of Chicago, were awarded the contract for the heating.

Lake Linden, Mich.—The Pearce Hardware Company, of this town, has secured the contract for the installation of a heating system in the Swedish Hall building at Dollar Bay. This company also has the contract for the heating of the new William Harry building at Hubbell, Mich.

La Porte, Ind.—Edward Kanney, of 614 Monroe street, has secured the contract for installation of an up-to-date plumbing system in the M. Rumely Company's oil tractor plant now nearing completion in this city. The contract runs well up in the thousands. Mr. Kanney also has the contract for the plumbing in the new Lake Shore station.

Norwood, O.—Sealed proposals will be received by W. S. Gwynn, clerk of the Board of Education, until 12 o'clock noon, Thursday, October 21, 1909, for furnishing the necessary labor and material for the erection and completion of an Elementary School building in this city in accordance with plans and specifications by Architect P. E. Moosmiller, of 2-7 First National Bank building, in this city.

HAD TO MOVE.

Moline, Ill.—The accompanying illustration shows the new building at the Lockhart Heating & Plumbing Co., plumbers, steam and hot water fitters. The structure is 40 ft. by 80 ft., three stories high, and located at 410 Sixteenth street. This building was completed early this year. The firm was compelled to erect it because they had entirely outgrown their old place where they had been tenants for ten years.

Lockhart Heating & Plumbing Co.'s new building at Moline, Ill.

BOSTON AND NEW ENGLAND

Lowell, Mass.—Welch Bros. are making extensive alterations in the heating system at the Normal school.

Lowell, Mass.—Welch Brothers are installing the plumbing in F. B. Sheed's new building on Church street.

Andover, Mass.—H. S. Wright & Co. are just completing alterations in the plumbing arrangements at the Congregational parsonage.

Holyoke, Mass.—M. J. Kearns has been awarded the contract for the plumbing and heating of Napoleon Plante's new house, now in process of construction on Oak street.

Lawrence, Mass.—John W. Keegan, a plumber in this city, has filed a petition in bankruptcy at the United States circuit court here. He has liabilities of $3,865 and assets of $3,193.

Pittsfield, Mass.—Contracts for plumbing and heating the $15,000 addition to the Country Club buildings have not been let but it is expected that bids will be asked within a few days.

Lowell, Mass.—Welch Brothers have completed two large heating contracts at Medway, Mass. One was for Father Foley and the other for Mrs. Jane Corbett's large apartment house.

Quincy, Mass.—Michael F. Corbett, a contracting plumber, has been adjudicated a bankrupt, and the first meeting of his creditors were held Saturday, October 9, in room 320, Tremont building, Boston.

Waterbury, Conn.—Sidney V. Hole, of Baldwin avenue, who has conducted a plumbing business in this city for several years past, has purchased the business of Neineman & Johnson of Cheshire and will shortly remove to that place.

South Norwalk, Conn.—John F. Griffin has moved his plumbing business into the building in East Washington street, which he and his brother, B. Arthur Griffin, have just erected.

Fairfield, Maine.—The contract for installing the steam heating apparatus in the new schoolhouse in Winslow has been awarded to George Toppan, of this town. Mr. Toppan also has in hand a contract for plumbing in the new house of S. T. Lawry, in this town.

Fairfield, Maine.—C. E. Furber has been given the plumbing contract in connection with the changes which are being made in the Files block, on Main street. Mr. Furber also has a contract to install heating apparatus in the new house which is being erected for Amos F. Gerald.

Haverhill, Mass.—The plumbers' and steamfitters' strike, which started five months ago, and grew out of a demand for an increase of twenty-five cents a day and certain restrictions as to the number of helpers, was declared off, when the employers decided to adopt the open shop policy.

Taunton, Mass.—The committee on public property is busy paring down the specifications for a new heating plant for the city hall building so that bids will come within the amount at their disposal. Bids were asked and received a few days ago and every one was far in excess of the appropriation at hand.

Adams, Mass.—J. J. Carney has the contract for a new heating plant in Trinity Methodist church and will start the work just as soon as possible, so that it may be completed before the extreme cold weather sets in. This is the second church in town to be supplied with a new heating apparatus this fall.

Augusta, Maine.—Charles S. Hichborne, chairman of the commission on the enlargement and alteration of the state house, has invited proposals for work in connection with the enlarging and alteration. Among others, he asks for proposals for heating, plumbing and ventilating separately from the building work. Bids will be received until 10 o'clock a. m., October 28, at which time they will be publicly opened.

Beverly, Mass.—Walter C. Flavin, a local plumber, is just finishing the work of installing the extensive plumbing and heating in the new house that is being built for M. A. Kearns, on Mulberry street. A special feature of the house arrangements is the system of heating . Special gas ranges have been installed and there will be no coal stoves in the house, a hot water system having been installed for heating purposes.

Master plumbers and master steam-fitters are earnestly requested to send us reports of the award of plumbing and heating contracts of $1,000 or more, as soon as these have been awarded, while the information has news value. Kindly address: Editor "Domestic Engineering," 209-213 N. Jefferson street, Chicago.

BLANK FOR REPORT

—OF—

Awards of Heating or Plumbing Contracts

(Cut out, fill in and mail promptly)

DOMESTIC ENGINEERING
Chicago

We have been awarded the

Plumbing Contract_____

Heating Contract_____

Kind of Building_____

Amount of Contract_____

Owner's Name_____

Architect's Name _____

Address_____

Our Own Name_____

Address_____

Widely Known Goods.

Said a prominent Heating Contractor: "One feature I like about IDEAL Boilers and AMERICAN Radiators is, they are half sold before I buy them." The public knows, due to our extensive advertising, that an IDEAL-AMERICAN outfit stands for efficiency, fuel economy and durability.

A Symbol of Merit.

IDEAL Boilers and AMERICAN Radiators not only help sell themselves through our wide-spread publicity, because of their essential fitness to give satisfactory service, but the Heating Contractor who handles IDEAL-AMERICAN goods frequently finds their well known reputation is bringing him valuable and unsolicited business.

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A Heating Outfit is More Efficient with NORWALL and SYLPHON SPECIALTIES

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New York, Philadelphia, Pittsburg, Washington, Cincinnati, Boston, Buffalo, Cleveland, Milwaukee, Indianapolis, Atlanta, Minneapolis, Kansas City, Brantford, Ont., Seattle, Omaha, Denver, St. Louis, San Francisco

PACIFIC COAST

Walla Walla, Wash.—Arthur A. Riggs has been awarded the contract for the installation of a heating system in the new Brown block in Kennewick. This structure is a three-story reinforced concrete building and it will be occupied by two stores and a hotel.

San Francisco, Cal.—Local heating engineers are preparing bids for the heating work in the new courthouse and jail that is being erected at Elko, Nev. Bids are being received by A. G. Dawley, clerk, and will be accepted until November 1st. W. H. Weeks of San Francisco is the architect.

San Francisco, Cal.—Wm. S. Shook & Son are keeping their shop busy with a number of small jobs and are figuring a number of contracts. One of the last pieces of work to be secured is the plumbing work in a three-story building to be erected for Theo. Rethers at Union and Scott streets.

San Francisco, Cal.—Wm. S. Snook & Son are keeperected by the Pacific Union Club on its property at Stockton and Post streets, and which will be occupied by a large furniture house, is to be equipped with an elaborate sprinkler system. This is to be installed by the Manufacturers' Automatic Sprinkler System Co. for $9,300.

San Francisco, Cal.—During the month of September building contracts were entered into here to the value of $1,724,983. Since the fire the total of building contracts has reached the sum of $143,866,945 and almost all buildings have materially exceeded the contract price. Since the fire there have been building permits to the value of $164,934,802 issued.

San Francisco, Cal.—The Lennig-Rapple Engineering Company, of 1402 Call building, has been awarded the contract for heating and ventilating the new Odd Fellows' building. The contract amounts to $5,200. Architect G. A. Dodge, of 244 Kearny street, made the plans for this building. The Lennig-Rapple Engineering Company also has secured the contract for the heating and power work in Mrs. Saunders' 10-story office building. The consideration is $6,000. The architect of this building is W. L. Schmolle, of Foxcroft building.

San Francisco, Cal.—During the past ten days a heavy rain has fallen in this city and plumbing work has been retarded to a considerable extent on buildings that had not been roofed over. The rain, however, brought on more repair work, especially to those firms that still do tinning in addition to plumbing, and also caused a general overhauling of heating apparatus, so that plumbers as a whole have not been greatly inconvenienced by the storm. It is very seldom that rains occur at this season of the year and building operations are expected to continue in full force until about the first of December, when the rainy season usually commences in earnest. There is a growing disposition on the part of builders to continue operations this winter on as large a scale as weather conditions permit, owing to the insistent demands for buildings of certain classes, and journeymen plumbers are looking forward to a much better season than was experienced last winter, when so many of them were unable to secure employment.

FRISCO PLUMBERS TO ENTERTAIN VISITORS.

San Francisco, Cal.—Preparations for making the Portola Festival the greatest event of the kind ever held on the Coast are now in full swing and already the city has taken on a festive appearance. Visitors are coming in already, being attracted by the extremely low passenger rates that have been placed into effect along the coast by the various steamship companies. A rate war is on at the present time and first-class passage between here and Los Angeles can be had for as low as $3. It is anticipated that many master plumbers will make the trip to see the festival and the local association is preparing to receive the visitors that may come. Realizing that the festival is to be one of the most important events in the history of San Francisco, being an official welcome on the part of the city to the world on her complete recovery from the fire of 1906, the local Master Plumbers' Association has donated $100 to assist in carrying out the plans of the Portola committee and individual members have also added materially to this.

THE SHOP BOOKSHELF

Being a brief mention of late publications which are worthy of special notice because of their unusual interest to the trade. They should be on "The Shop Bookshelf" in every plumbing and steam fitting establishment for instant reference. A free copy of any publication referred to under this heading may usually be had by mentioning "Domestic Engineering" when you write.

From J. C. Eichman Mfg. Co., Baltimore, Md.: A thirty-one page catalogue containing twenty-seven half tones illustrating but a portion of the company's "Clover Brand" plumbers' woodwork.

From W. J. Scully Mfg. Co., 171 Beecher ave., Detroit, Mich.: A 3¼"x6¼" folder of eight pages, defining the word "Vitro," as applied to closet tanks, and also making some interesting comparisons between Vitro Tanks and others.

From American District Steam Company, Lockport, N. Y.: Bulletin No. 115, "The Financial Effect of Combining an Exhaust Steam Heating System With an Electric Light and Power Plant." Gives a statement of the comparative revenue of a condensing plant with an auxiliary district steam heating system.

From the Union Sanitary Mfg. Co., Noblesville, Ind.: A catalogue, bound in substantial cloth covers, contains ninety pages, size 5"x9". The illustrations are very good half-tones, made from actual photographs. Full descriptions and prices are given of this firm's line of enameled baths, lavatories, sinks, urinals, tanks, etc.

From B. F. Sturtevant Company, of Hyde Park, Mass.: General catalogue No. 165, showing the company's complete line of fans, blowers, dust collecting and conveying systems, fuel economizers, engines, motors, turbines, etc. Principal dimensions and other useful information are given. Anyone interested in the

company's products will be supplied with a copy of this catalogue on request.

From the Cahill Iron Works, Chattanooga, Tenn.: A 128-page catalogue of "Southern Beauty" enameled ware. The size of the book is 3½"x6", illustrated with half-tone engravings throughout. Special emphasis is laid on sink combinations, sink and laundry tubs and duplex laundry tubs, the claim being made that these fixtures are original with this company.

From the McCloskey Co., 317 Eleventh street, Brooklyn, N. Y.: A four-page folder of envelope size, giving detailed description of The McCloskey Water Closet Connection. A sectional drawing shows the fitting connecting an earthenware water closet with the drainage system.

From F. E. Cudell, Cleveland, O.: A 6"x9" catalogue of eighteen pages, in paper covers listing the several types of Cudell sewer gas and back water, anti-syphon traps, etc. Illustrated with numerous sectional views of the Cudell traps.

From the Standard Sanitary Mfg. Co., Pittsburg, Pa.: "The Passing of the Putty Joint," a 6"x9" paper-covered book of twenty-eight pages, illustrating and describing the "Standard" ball joint closet flange. The book is an example of fine printing and attractive arrangement throughout. Two pages are devoted to reasons why architects should specify, and why plumbers should buy the Standard ball joint flange.

WITH THE MAKERS

A High and Low Pressure Ball Cock.

The Ryan ball cock shown herewith is made by the Exeter Brass Works, Exeter, N. H. The manufacturers in describing this fitting say that the direct line bearing on plunger insures positive shut-off, the seat, which is removable, is of the best metal, the multiplying power leverage is 32.6. Another feature of advantage in this

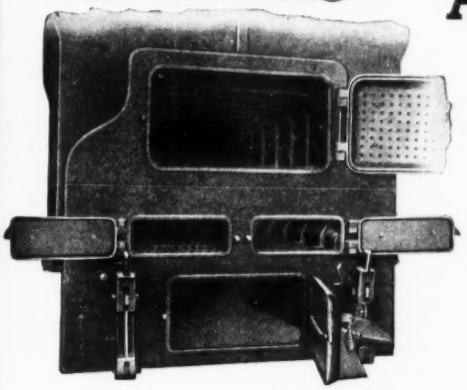
Ryan's patented ball cock.

cock is said to be that by reversing the position of lever to the upper slot, the water supply closes off by the weight of float, enabling repairs to be made in tank and hot water system. This obviates removing screws in making repairs. When writing to the company for prices and description of this ball cock, kindly mention this article.

New Calking Tools Help Over Hard Places.

A new line of calking tools, manufactured by the H. Mueller Mfg. Co., Decatur, Ill., solve some of the most difficult and trying problems, in that they make calking

CAPITOL BOILERS AND RADIATORS



A Locking Grate

Not an ordinary rocking and dumping grate, but a **locking** grate. Besides the rocking and dumping provision of the **Capitol Improved Boiler** grate, there is a locking device on the same catch. With this the user **can lock the grate** so that he can be assured that the grate bars are in a perfect horizontal position. The danger of burning the great bars is reduced to to the minimum.

United States Heater Company

General Offices and Works: Fort St. and Campbell Ave., DETROIT, MICH.

BRANCHES:

NEW YORK	129 Worth St.
CHICAGO	34 Dearborn St.
OMAHA	916 Farnam St.
DETROIT	139 Jefferson Ave.
KANSAS CITY OFFICE	413 N. Y. Life Bld.

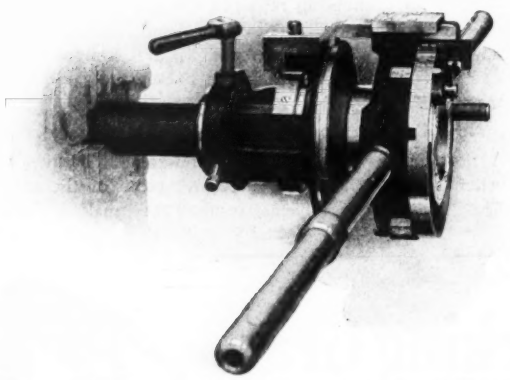
SALES AGENCIES:

MINNEAPOLIS, MINN., Plumbing & S. F. Supplies Co.
ST. LOUIS, MO., L. M. Rumsey Manufacturing Co.
DENVER, COLO., Kellogg & Stokes Stove Co.
DULUTH, MINN., Duluth Plumbing Supply Co.

in some seemingly impossible places a comparatively easy task, is the claim of the manufacturer. This company has just issued a new book with illustrations showing their complete line and the particular purpose of each tool. By mentioning this paragraph, those who write the company will unquestionably be given full information regarding the practical uses of these new tools.

New Tools for Threading Pipe.

Several features of the pipe threading tool here shown are said to be quite distinctive. The dies are of the chaser style; they are made to cut easily by being formed with a short cutting edge and by the automatically expanding movement which they have as they are screwed onto the pipe, and which renders it possible, with such short edges, to produce threads having the taper that is essential for making tight joints. They may be removed and



Hart's "Buckeye" die stock, with capacities from ½ to 2 inc

ground as readily as a chisel. The dies are adjustable, one set of dies being used on pipe 1, 1¼, 1½ and 2 inches. When desired, a pipe cutting attachment is furnished, which can be clamped onto any tool. This attachment does its work smoothly and with moderate speed. The cutter is in full view of the operator and can be quite readily detached for grinding. These tools are made by The Hart Mfg. Company, Cleveland, O., who will be glad to send complete details on request, mentioning "Domestic Engineering."

Sanitary Slate Easily Cleaned.

That kitchen sinks and washtubs made of slate are favorites with housewives, because no other material is so easy to keep clean, is among the claims made for sanitary slate manufactured by the Pennsylvania Structural Slate Company, Dome building, Easton, Pa. Slate, it is said, may be easily cleaned by the simple application of water, making it an ideal material for urinals, shower stalls, bathroom partitions, kitchen sinks, sink tops, wash tubs, lavatory tops, etc. Those interested will get complete information by writing the company about sanitary slate, mentioning this article as causing the inquiry.

Special Composition Faucet Washers.

The accompanying illustrations show facsimiles of the special composition graphite or plumbago faucet washers and fuller balls, which are said to be specially adaptable for all grades of hot or cold water. They are made by

Bibb Washer.

Fuller Ball.

the Beekman Sanitary Specialty Company, 99 Beekman street, New York City. The fuller ball is claimed to be made of an exceptionally tough composition stock, having a sufficiently pliable outside surface to insure proper seating but avoiding the usual grinding, while it has the proper stout moulded form, which is generally required. The bibb washer being 3/16 inches thick, and made of the same composition as the Fuller ball, has the required stability necessary for an effective and lasting serviceable washer of this description. Information relating to these washers can be obtained promptly from the company. When writing, kindly state that "Domestic Engineering" gave you the tip.

PATENTS

935,629. Water-Nozzle. Abram Allbright, New York, and George G. Scudder, Babylon, N. Y.

935,637. Method of Purifying Water. William B. Bull, Chicago, Ill.

935,642. Flushing Apparatus. Gerhard Coenen, Hoboken, N. J.

935,743. Heating Apparatus. Guy B. Collier, Kinderhook, N. Y.

935,753. Steam-Trap. Emil Gofferje, Leverkusen, near Cologne, Germany, assignor to Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany, a corporation of Germany.

935,808. Vent Mechanism. Michael L. Parker, Freeport, Ill.

935,842. Faucet Valve. Richard T. Foley, New York, N. Y., assignor to Timothy J. Foley and Richard T. Foley, New York, N. Y.

935,856. Valve. Jeremiah O'Meara, New York, N. Y.

935,857. Hydrant. Walter K. Palmer, Kansas City, Mo.

935,948. Lubricator. William O. Turner, Beaumont, Texas.

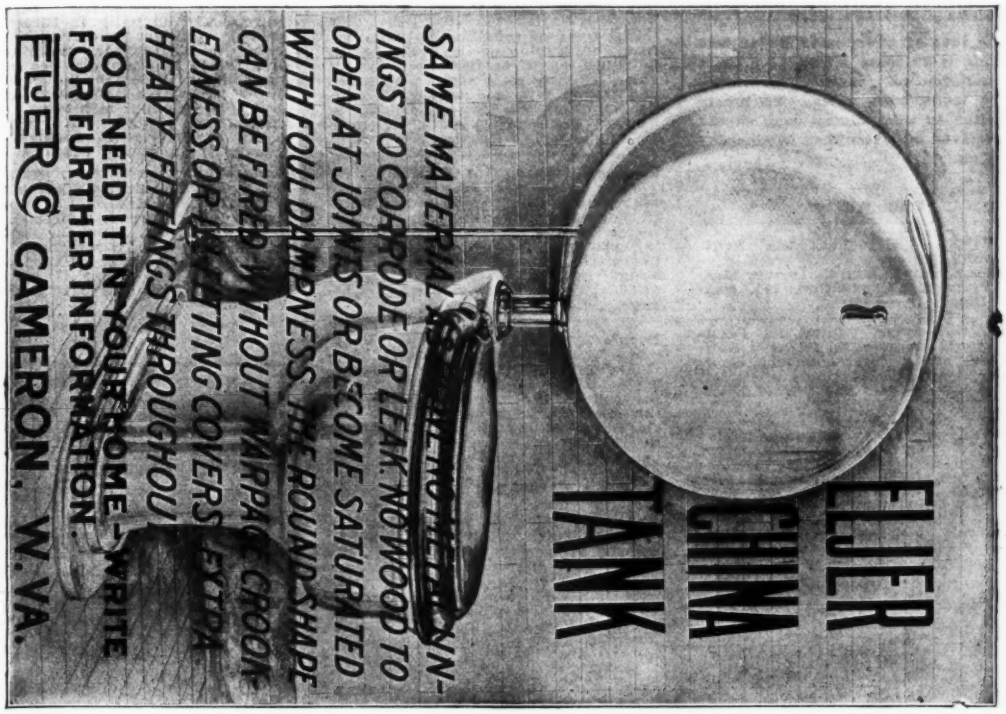
935,960. Steam-Heating System. Daniel Broadbelt, New York, N. Y.

936,014. Water-Heater. William E. Morrow, East Cleveland, Ohio.

936,097. Heater. Edward J. Droz, Charles A. Droz, and Charles H. Droz, Pittsburg, Pa.

936,098. Inverted Gas-Lamp. Charles L. Duenkel, East Orange, N. J.

936,278. Washtray-Bib. Henry Mueller, Decatur, Ill., assignor to H. Mueller Manufacturing Company, Decatur, Ill., a corporation of Illinois.


ELJER
CHINA
TANK
SAME MATERIAL AS
INGS TO CORRODE OR LEAK. NO WOOD TO
OPEN AT JOINTS OR BECOME SATURATED
WITH FOUL DAMPNESS. THE ROUND SHAPE
CAN BE FIRED WITHOUT WARPAGE OR CROOK-
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YOU NEED IT IN YOUR HOME—WRITE
FOR FURTHER INFORMATION.
ELJER CAMERON, W. VA.

PATENT LITIGATION

"BEFORE AND AFTER TAKING."

The following excerpts from statements made by Warren Webster & Company in 1906 (before its case against C. A. Dunham Company was decided), and in 1909 (after the same was decided adversely to Warren Webster & Company), show the inconsistent and antithetical positions taken by Warren Webster & Company:

1906

"Regarding the Dunham trap, would say that it is a positive infringement of the Webster system, and we are endeavoring to locate a good job of this character on which to bring suit. No matter what they say to you, it does constitute an infringement, as all devices that are operated by expansion and contraction are a positive and direct infringement of the Hall patent, **under which the Webster System is erected.**"

1909

"The decision does not affect any existing rights and cannot interest prospective users of steam heating apparatus.

"The patent relates to a form of apparatus which is not now generally used, having been discarded some years ago for more efficient forms."

The Dunham Company has uniformly claimed that none of the heating systems installed under its direction and according to its plans and specifications constitute an infringement of ANY VALID patent, and this company has never had but one suit against it. This suit was decided in favor of C. A. Dunham Company and against Warren Webster & Company. The Dunham Company will try all its cases in a legal and orderly manner in the courts, and not through the medium of newspapers.

C. A. DUNHAM COMPANY,
Marshalltown, Iowa, C. A. Dunham, Pres.
September 29, 1909. Adv.

GOVERNMENT WORK

For Riley, Kansas.—Sealed proposals will be received at the office of the constructing quartermaster, Captain W. M. Whitman, until 10 a. m., October 20, 1909, for the construction, plumbing, heating and electric wiring of one four-set officers' quarters, one civilian teamsters' quarters, and one four-set civilian employes' quarters, in accordance with plans and specifications.

Washington, D. C.—Sealed Proposals will be received at the office of Supervisor Architect James Knox Taylor until 3 o'clock p .m., November 15, 1909, and then opened, for the construction, including plumbing, gas piping, heating apparatus, electric conduits, wiring and lift, of an extension, remodeling, etc., to the United States postoffice and customhouse at New Haven, Conn., in accordance with drawings and specifications.

Burlington, Iowa.—The Russell Sewage Disposal Company this week made a shipment of three of its sewage disposal systems to Arkansas.—Adv.

CLASSIFIED ADVERTISEMENTS

The rate of advertising under this heading is 25 cents a line, or 5 cents a word, for an insertion, remittance to be made with order. To insure insertion in this column copy should be received not later than Wednesday morning.

Help Wanted.

WANTED — FIRST CLASS NON-union plumbers. Steady work. Five dollars for eight hours. Denver Master Plumbers Association, 214, Nassau Block, Denver, Col.

WANTED—Agent calling on Pennsylvania plumbers to sell on a commission basis; correspondence confidential. Address, stating full particulars, 1822 N. Mervine St., Philadelphia, Pa.

WANTED—A man thoroughly posted in plumbing supplies, as assistant to shipping clerk. Replying, state experience, wages wanted and give references. Address No. 160, "Domestic Engineering," Chicago.

WANTED—Experienced man to take charge of boiler and radiator department of large steam and plumbing supply house in Philadelphia. Communications considered confidential. Address No. 162, "Domestic Engineering," Chicago.

WANTED—A salesman who is familiar with New York State territory for plumbers' and steamfitters' supplies. Address in own handwriting, stating salary expected, age, and experience. Address No. 163, "Domestic Engineering," Chicago.

WANTED—Bookkeeper for plumbing and heating establishment; must be quick and accurate and thoroughly acquainted with the plumbing and heating business; steady employment to right party; young married man preferred; references required. Address No. 161, "Domestic Engineering," Chicago.

Miscellaneous.

WANTED—TO BUY A PLUMBING SHOP in a good town within 150 miles of Chicago. Address 164, "Domestic Engineering", Chicago.

Plumbing Schools.

LEARN PLUMBING ON NEW buildings for $50.00; catalog free. Enterprise Plumbing Const. Company, 3659 Finney Ave., St. Louis, Mo.

Books.

Sanitation in the Modern Home. By Jno. K. Allen. An invaluable guide to the architect, plumber, heating engineer and house owner, telling just what is necessary to make a house completely sanitary from the subsoil to the roof. 8x5¼ inches; 272 pp.; bound in cloth; postpaid, $2.00. "Domestic Engineering," Chicago.

Notes on Heating and Ventilation. Second edition. By Prof. John R. Allen. Written primarily for the steamfitter and designer of heating systems. Reduced to as brief a form as possible, so that readers can readily find notes or data desired. Bound in cloth, 6¾x4¾ inches; 272 pp.; postpaid, $2.00. "Domestic Engineering," Chicago.

Roughing-in House Drains. Edited by Jno. K. Allen. A complete guide to the work of roughing-in plumbing, from the digging of the sewer to the finishing length of the soil and vent stacks, giving each step to be taken and telling how and why it is done. 6¼x4¼ inches; 184 pp.; bound in boards. Postpaid, 50 cents. "Domestic Engineering," Chicago.

Sanitary Sewerage of Buildings. By Thos. S. Ainge. An authoritative statement of the principles and practice of sewering buildings, including the design and construction of plumbing systems, disposal of sewage in unsewered localities, etc.; 8x5 inches; bound in cloth; 209 pp.; postpaid, $1.50. "Domestic Engineering," Chicago.

Dean's System of Greenhouse Heating by Steam or Hot Water. Directions for obtaining different temperatures; tables of radiation necessary per square foot of glass; tables giving glass surface; sizes of flow and return pipes; explanations so simple all fitters may understand. Cloth bound, 7¾x5½ inches; 46 pp.; postage prepaid, $2.00. "Domestic Engineering," Chicago.

Notes on Heating and Ventilation. Second edition. By Prof. John R. Allen. Written primarily for the steamfitter and designer of heating systems. Reduced to as brief a form as possible, so that readers can readily find notes or data desired. Bound in cloth, 6¾x4¾ inches; 272 pp.; postpaid, $2.00. "Domestic Engineering," Chicago.

"Domestic Engineering" Directory. Published annually in three parts; part I contains directories of great value to the jobber, manufacturer, and dealer in plumbing, heating and mill supply trades; bound in leather, $5.00; part II is illustrative and descriptive of the mentioned trades' specialties; 11¼x8 inches; bound in cloth; part III is in Spanish. "Domestic Engineering," Chicago.

Dean's Steamfitter's Computation Book. Contains figured cubical contents of rooms of different sizes and ceiling heights; also tables showing radiation necessary at various rates per square foot of glass surface, wall surface, or cubic feet; also square feet of glass or wall in surfaces of various dimensions; also cost of selling price of radiators at various market prices. These tables save fitters thousands of arithmetical calculations, giving the answers ready to hand. Leather bound; 7¾x5 inches; 90 pp.; postage prepaid, $2.50. "Domestic Engineering," Chicago.

Plumbing Catechism. By Charles B. Ball. Second edition. This book formulates, in question and answer form, the basic principles of plumbing design and practice. It is therefore especially commended to students in engineering and trade schools, and to master and journeymen plumbers, preparing for examinations. Bound in cloth; 6¾x4¾ inches; 100 pp.; postpaid, $1.00. "Domestic Engineering," Chicago.

"Domestic Engineering" Directory. Published annually in three parts; part I contains directories of great value to the jobber, manufacturer, and dealer in plumbing, heating and mill supply trades; bound in leather, $5.00; part II is illustrative and descriptive of the mentioned trades' specialties; 11¼x8 inches; bound in cloth; part III is in Spanish. "Domestic Engineering," Chicago.

Tables for Calculating Sizes of Steam Pipes. By Isaac Chaimovitsch. These tables furnish a method of determining sizes of steam pipes for low pressure heating without laborious mathematical calculations; bound in cloth; 4½x6⅞ in.; 47 pp.; postpaid, $2.00. "Domestic Engineering," Chicago.

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to an advertiser; a highly satisfactory agent secured by another; numerous requests for prices received by several; these live wires show the opportunity for trade extension in Latin America secured through

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the only Spanish engineering journal printed in the U. S. Copy free on request.

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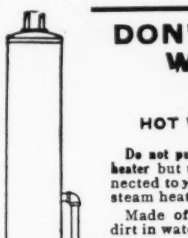

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Made of brass, no rust, no dirt in water.

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A Testimonial

Buffalo, N. Y., April 28, 1909.

Mercantile Label Co., Nashua, N. H.

Gentlemen:—We are just in receipt of the third order of your printed labels for shop fitting boxes. Feeling that a letter of reference would be satisfactory to you, we beg to say that your labels are the best we have seen yet. They are very attractive and would be pleased to recommend to any one that might refer to us concerning same.

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(Signed) The Sullivan & Worthington Co.,
Steam and Hot Water Heating and Ventilating Engineers and Contractors.

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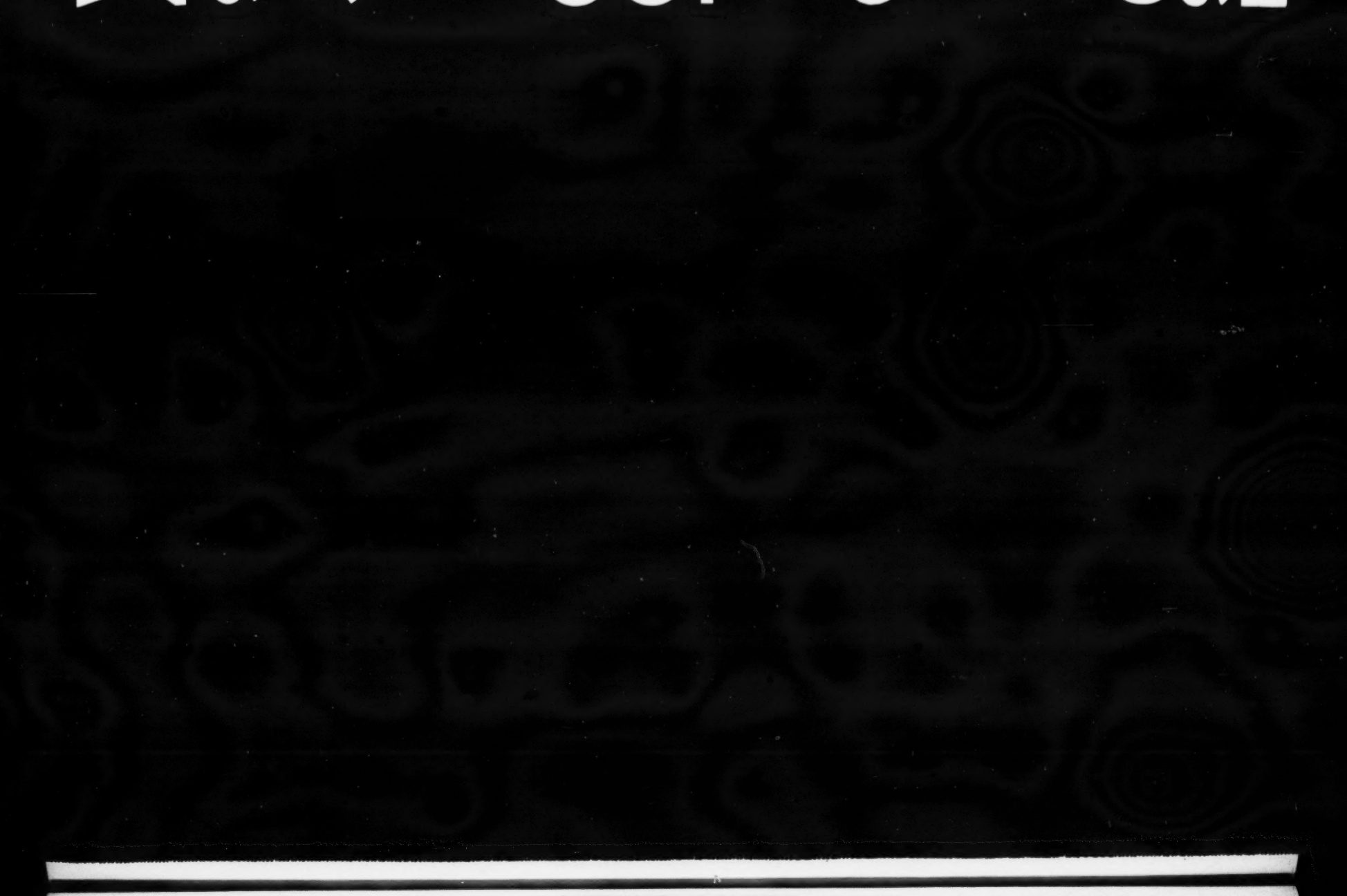
Adjustable Radiator Foot Rest

The time saved on each job pays for them—can be used for bath tubs and other fixtures

The Jeanison Company, Fitchburg, Mass.

Patent Dec. 8, 1908

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